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How wildlife keep food fresh, longer

Backyard bears
Grizzlies spread east from the Front

Ka-ching!
Fish and wildlife make cash registers ring

Welcome hunters
Access programs open gates

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EYES ON THE PRIZE

Are Block Management and other FWP access programs working to get hunters closer to elk and other wildlife? Find out on page 6. Photo by Rodney Schlecht.

MONTANA OUTDOORS

NOVEMBER/DECEMBER 2002 VOLUME 33, NUMBER 6

FREE WILDLIFE PRINTS!

As a holiday gift to our readers, we have included four popular wildlife prints, suitable for framing, in the center of this issue.
—*Editor*

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Letters

JAMES HAGENGRUBER

BUMPER GUARDS: *From left to right:* Specialist Lee Butterfield, of Shelby, and Sergeant Robert Hankins, of Townsend.

Montana natives keep the peace

While on a recent trip to Europe, I happened upon these Montanans on patrol in northern Bosnia-Herzegovina. The soldiers are among 150 Montanan National Guardsmen who spent six months in the country this year as active-duty peacekeepers and have since returned to Montana. While in Bosnia-Herzegovina, they told me they enjoyed their duty, but most said they would rather be fishing in a Montana stream than lugging around machine guns and body armor 5,000 miles from home. Oddly enough, I snapped this picture near a fish hatchery run by local Serbian residents. Most of the trout and carp in the hatchery end up in nearby restaurants, however, not in fishing waters.

James Hagengruber
Billings

Some funny business going on

I have long enjoyed John Fraley's writing and have learned many facts about the curious ways of nature from his works. No fact was more curious, however, than one Mr. Fraley mentions in the September/October 2002 issue of *Montana Outdoors*.

Mr. Fraley writes: "Marten breed in summer. Courtship can last 15 days, during which the pair wrestles, while growling, screaming, and 'chuckling' (a sound that biologists consider a mating call)."

Fascinating, yes, but this reader is left wanting more information. For example, do biologists consider all "chuckling" a turn-on, or specifically that of pine martens? Are the libidos of fisheries biologists similarly triggered by this sound, or just those of wildlife biologists? And if biologists get romantic at a chuckle, what happens when they hear a chortle or a guffaw? I fear to imagine.

Ben Long
Kalispell

Editor's reply: *We couldn't help but chuckle at your letter—much to our embarrassment.*

Taxation without representation?

Regarding the thought-provoking article on residents and nonresidents: I agree that a nonresident should shoulder a greater financial burden for using Montana's natural resources. However, as a nonresident who owns a home and land in Montana and who pays fairly high property taxes, I get virtually nothing in return for that expenditure. I pump a large amount of money into the local economy and am basically treated as a virus. I allow local residents to hunt on my land, but, as a nonresident, I must pay at least 10 times what they do to recreate on my own property. I'm not suggesting that I pay the same fee as a resident, but I certainly don't feel I should pay the same as a nonresident who doesn't pay property taxes in Montana.

I look forward to retiring in Montana, but in the meantime I sure don't feel very welcome.

Eric A. Breisch
San Diego, California

No sympathy

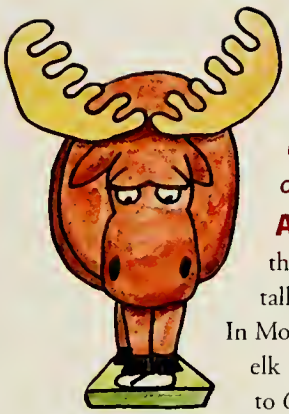
In response to the letter from the landowner in the September/October 2002 issue, I want him to know that while he is "trying to make a living raising food for [us recreationists]," we are working every bit as hard to make a living so we can afford to buy that food. Also, we recreationists don't float and fish seven days a week, just as surely as he and other food producers each don't work seven days a week....

We all have to live in this old world, the only one we have, and we should respect the rights and feelings of each other.

State Senator Al Bishop
Helena

As their eyes met across the crowded room, Karen knew she'd found her one true love—or at least someone who could help skin out an elk on opening day.

Natural Wonders



Q. *Which is bigger, a moose or an elk?*

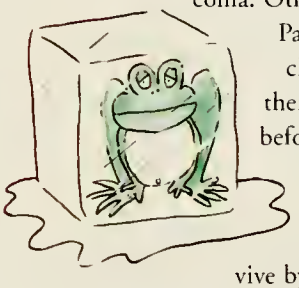
A. The moose is the heavier and taller of the two. In Montana, adult cow elk range from 500 to 600 pounds; bulls run from 500 to 900 pounds and stand up to 5 feet tall at the shoulder. Montana's adult cow moose range from 600 to 800 pounds, and bull moose can weigh as much as 1,200 pounds and stand 6 feet at the shoulder. But the truly massive moose live in Alaska and northern Canada. These monsters can reach a ton. When asked by a reader in a recent issue of *Field & Stream*, "Where is the best place to shoot an Alaskan moose?" the magazine's hunting columnist, Montanan John Barsness, answered, "Next to a forklift."

Q. *How much of Montana is designated as "wilderness"?*

A. The 12 national wilderness areas in Montana make up roughly 3 percent of the state's terrain. Depending on your point of view, that's either a lot or not enough. The largest wilderness area, at just over 1 million acres, is the Bob Marshall. A close second, at 920,000 acres, is the Absaroka-Beartooth. The smallest is 28,000-acre Welcome Creek.

Q. *How do frogs get through the winter without freezing?*

A. Some frogs, such as the bullfrog and northern leopard frog, sink to the bottom of ponds and streams to wait out winter under ice in a sort of coma. Others, such as the Pacific and western chorus frogs, dig themselves into wet soil before freezing into living ice cubes. They practically stop breathing and survive by converting their body's glycogen into glucose. That sugar acts like an anti-freeze to keep vital organs and muscles from freezing solid.



Our Point of View

When you think of Montana Fish, Wildlife & Parks, do you ever think of the state's economy? You might consider doing so. The fish, wildlife, and parks resources we're entrusted to manage generate more than $1 billion in spending each year. That's an average of $2,750,000 passing hands every single *day*.

In the article "Cash register conservation," which begins on page 19, *Montana Outdoors* editor Tom Dickson takes a close look at where that $1 billion goes. As you'll see, hunting, fishing, and wildlife watching spread cash across the state, from elk hunting in the southwest and walleye angling in the northeast, to backcountry horse trips in the Bob Marshall Wilderness and backyard bird feeding in Missoula suburbs.

What accounts for such diverse and abundant spending? More than anything, it's the state's national reputation for diverse and abundant fish and wildlife.

That Montana is rich in trout, elk, and other species may be obvious to anyone who lives or visits here. What's not so apparent is the fact that those precious resources only exist at the level and quality they do because of careful management. FWP biologists and managers continually monitor fish and wildlife populations, protect and restore habitat, and conduct practical research. They also provide hunting and fishing access and extensive information to the public. Meanwhile, this agency is constantly meeting with landowners, sports and conservation groups, industry representatives, public land managers, regular citizens, and more—all so we can balance the wide range of interests concerned about Montana's fish, wildlife, and parks.

MONTANA FWP

This work takes money and people. Yet, of the $1 billion spent each year in Montana on hunting, fishing, and wildlife watching, just 4 percent goes to buying hunting and fishing licenses. That revenue—less than $40 million—makes up most of our budget for managing fish and wildlife. In other words, only a small fraction of what's spent on fish and wildlife gets reinvested back inro the management of these resources.

Some people say FWP is too large for what we manage. I say just the opposite. We manage hundreds of fish and wildlife species. Hundreds of thousands of hunters, anglers, and wildlife watchers rely on those resources. And hundreds of millions of dollars are spent in Montana each year on the recreation they support. FWP makes that economic motor run. It only makes sense that this agency continue to receive the funding it needs to maintain the health of the state's fish and wildlife populations—not to mention the businesses that rely on those valuable, renewable natural resources.

—Jeff Hagener, Director

Montana Outdoors Report

So far, no CWD found in Montana's wild elk or deer herds

Should people worry about Chronic Wasting Disease (CWD) in Montana? Probably not. According to public wildlife and health officials, the disease, which affects deer and elk, has not been found in any of the state's wild ungulate populations, and there is no evidence showing it can be transmitted to humans.

DUSANSMETANA.COM

SO FAR, SO GOOD: Wildlife and health officials say that CWD has not been found in Montana's wild herds and that no evidence has shown it can be transmitted to humans.

CWD is a rare neurological disease found in a small percentage of wild deer and elk in a few areas of North America. It belongs to a family of diseases called transmissible spongiform encephalopathies (TSEs). Other TSEs include scrapie in domestic sheep, "mad cow disease" in cattle, and Creurzfeldt-Jakob in humans.

Though CWD is similar to these diseases, it's not one that humans can contract, say public health officials with the U.S. Centers for Disease Control. Scrapie has existed in sheep for at least 300 years, yet there has never been a case of scrapie reported in a human being, even among people who work with sheep and the millions of people who eat lamb and mutton.

CWD attacks the brains of infected deer and elk, causing animals to grow thin, stagger, and eventually die. Testing for CWD is done by sampling part of the brain, tonsils, or lymph nodes from the heads of dead animals. There is no practical way to test live animals for CWD. No cure has been found for the wildlife disease.

During the past year, scientists have confirmed that CWD has infected deer or elk in stares previously thought to be free of the disease, such as Wisconsin and Minnesota. This has prompted an increase in scientific investigation, media coverage, and speculation about CWD in wild deer and elk populations.

Some common questions asked about the disease:

Has CWD been found in Montana's wild deer and elk populations?

No. However, it was diagnosed in captive elk on one alternative livestock facility (formerly known as game farms) in Montana in 1999. All animals in the facility were destroyed and the facility was quarantined.

What is Montana doing to address the issue?

In 1996, prompted by reports of CWD in neighboring states, Montana FWP first began monitoring deer and elk for the disease. In 1998, FWP and the Montana Department of Livestock increased scientific surveillance of both wild and captive deer and elk in Montana.

So far, FWP has tested roughly 1,700 wild deer and elk taken by hunters, plus 50 deer and elk that appeared sick. All tested negative for CWD. Alternative livestock producers have tested roughly 1,700 deer and elk from alternative livestock facilities. None tested positive for CWD.

FWP will continue to test deer and elk taken by hunters this fall. Any deer or elk that die in an alternative livestock facility in Montana will also be tested.

Meanwhile, FWP is developing a CWD action plan to prepare for the possibility of the disease moving into Montana's wild deer and elk. And Montana continues to work with adjacent states, Canadian provinces, and federal agencies to share resources and cooperate in responding to wildlife diseases including CWD.

Is CWD a human health hazard?

It doesn't appear so. Public health officials at the U.S. Centers for Disease Control have not found any link between CWD and neurological disease in humans. And there is no evidence that CWD can be naturally transmitted to humans or to animals other than deer or elk. However, scientific studies are still in progress to determine the risk, if any, that CWD may pose to human health.

What precautions should I take?

Hunters concerned about CWD should take normal precautions such as nor shooting or getting near any strange-acting wildlife; using rubber or latex gloves when field dressing; boning out all meat; and washing hands, knives, and saws thoroughly after field dressing.

How can I learn more?

Get more information from:

- www.cwd-info.or.
- fwp.state.mt.us *(click on Hunting, then click on Know Before You Go).*
- Montana Department of Public Health Human Services, (406) 444-0273.

Safety officials call snowmobile high-marking a deadly game

HILL THRILL: High-markers court danger by seeing who can go the highest on slopes.

No one knows for sure how it happened, but the four Missoula-area snowmobilers killed on January 26, 2002, had been riding up steep slopes in an area where officials had warned of a high avalanche risk.

The four were part of a group of ten friends snowmobiling in a backcountry area north of Bonner. Surviving group members said they had been aware of the weekend's avalanche advisory forecasting high avalanche danger. About midday, according to survivors, a sea of snow thundered down on the group. Only six sledders survived.

The fatalities were among a record nine recorded for avalanche deaths in Montana this past winter. The previous year, only five snowmobilers died from avalanches.

What accounts for the 80 percent fatality increase? According to Ray Paige, FWP trails program specialist, a snowmobile stunt called "high-marking" could be largely to blame.

"The first rider climbs up a steep, open hillside, and then others try to see who can get a higher mark up the hill," he says.

The activity can launch an avalanche, burying the high-markers and others.

Paige says high-marking is not illegal. "But we're trying to get snowmobilers who high-mark to pay attention to snow conditions so they don't cause an avalanche."

He says that snowmobilers should keep close tabs on snow conditions. "Look out for slopes around 37 degrees, where a deep layer of fresh snow is over a layer of cold, hard snow," he says. "That new snow is susceptible to sliding, and it doesn't take much to separate the two layers."

Paige's advice for snowmobilers encountering such conditions? "Go somewhere else," he says. "Or at least go to the other side of the hill where conditions are better."

He also cautions against helping a snowmobiler stuck on a steep slope. "The weight of two sleds and two riders can trigger an avalanche," Paige says.

Even if you aren't concerned with your own safety, he adds, "think about your kids. What is your son or daughter going to do if you don't ever come home?"

Find links to regional avalanche information at the Avalanche Center web site (www.csac.org/Bulletins/), or call Montana's regional avalanche advisory centers: Kalispell, (406) 863-9624; Bozeman, (406) 587-6984.

JOHN R. FORD

Look at those snow geese

Surely one of the greatest spectacles of fall is the annual waterfowl migration. From their breeding grounds in Canada, ducks and geese congregate in massive flocks and fly south to wintering areas along the Gulf Coast. Waterfowlers regularly get a glimpse of this grandeur. But what about those who don't hunt?

Perhaps the top spot for wildlife watchers to see waterfowl en masse in fall is at Freezeout Lake Wildlife Management Area (WMA), 40 miles west of Great Falls. The lake attracts hundreds of thousands of snow geese each autumn—not to mention mallards, shovelers, pintails, canvasbacks, and swans. There's a kiosk near the WMA headquarters, at the lake's southeast corner just off Highway 89, where you can grab a birding guide and map. WMA manager Mark Schlepp cautions that fewer roads are open in fall than in spring. "It's a park-and-walk type of thing this time of year," he says. Also, birders should note that hunters are usually about (but they are aiming up). For current migration conditions, call the WMA hotline at (406) 467-2646.

Winter parking

Though visiting a Montana state park may seem like a summer activity, the sites can be enjoyable when the snow flies too. At various parks across Montana, winter visitors can cross-country ski, hike, watch wildlife, ice fish, or even have a picnic.

One treat is ice skating at Bannack State Park, December 26–March 1. On weekends the park opens a warming house and supplies hot cocoa. Call (406) 834-3413.

At Flathead Lake State Park, you can rent a yurt (a tall, heated canvas tent that sleeps up to six) by calling (406) 751-4577. At Lewis and Clark Caverns State Park, visitors can spend the night in a log cabin. Call (406) 287-3541. Also at Lewis and Clark Caverns are the popular holiday candlelight tours, December 21-22 and 28-29. Reservations are needed and they go fast, so call soon.

For more on state parks, visit the FWP web site at www.fwp.state.mt.us. ■

Keys to the treasure

By Alan Charles

Three innovative FWP programs help unlock access to millions of acres of priceless public and private hunting lands across Montana

Ask most hunters what they consider the biggest challenge to hunting in Montana, and you might hear about the weather, the terrain, or a certain game animal's habits. But the most likely answer will be, "Finding a place to hunt." Whether a hunter is pursuing antelope in eastern sagebrush breaks, upland birds in central wheat fields, or elk in the western mountains, locating a place to hunt in Montana, especially a place where fees aren't required, is becoming increasingly difficult.

Though the overall number of hunters is not growing, competition for existing access is. Today's hunters spend more days afield, yet find fewer gates open. Landowners restrict access for a variety of reasons. Sometimes gates close after a landowner witnesses dangerous or unethical hunter behavior. Some landowners prefer to lease their lands to an outfitter. Others close their property to public hunting entirely, either to maintain exclusive access for themselves and close friends, or to prevent wildlife from being shot.

Nevertheless, hunters in Montana still have some of the best hunting opportunities available anywhere in the western United States. The state has nearly 35 million acres of state and federal land, approximately 57 million acres are owned by 28,000 farmers and ranchers, and hunters can choose from a wide variety of options to secure hunting access. Much of that access is due to several innovative and, in some cases, little-known programs run by Montana Fish, Wildlife & Parks and funded by hunters.

Private land access programs have been around in one form or another since the mid-1970s, funded, in recent years, primarily from nonresident hunters' license

DONALD M. JONES

BEHIND BARS: Frustrated at being shut off from public wildlife by private gates, hunters asked the legislature to help them gain access. In 1995, lawmakers responded with the Hunting Access Enhancement Program.

fees. Beginning this year, however, all hunters in Montana have begun funding FWP efforts to maintain and improve public hunting access. The money comes from a new mandatory Hunting Access Enhancement Fee ($2 for residents and $10 for nonresidents) required the first time a hunter purchases any type of hunting license during each license year (March 1 to February 28).

The money, along with funds from other license sales, is being used to run three programs under Montana's Hunting Access Enhancement Program statutes: Block Management (private land access), Access Montana (public land access), and Special Access Projects (localized species-specific projects).

Montana FWP remains committed to maintaining and improving public hunting access. For the 2002 hunting season, it has allocated approximately $5 million to fund these three programs.

Such a high level of funding for public hunting access enhancement may not continue for much longer, however. In 1995, FWP was granted only temporary legislative authority to enhance existing hunting access programs and fund them through a new variable-priced outfitter-sponsored nonresident elk and deer license. In 1999, the temporary authority, called a sunset provision, was extended, but only to March 1, 2006. That means the Montana legislature has only two sessions (2003 or 2005) to either extend or remove the current sunset provision. Otherwise, FWP will automatically lose the authority and funding sources for its current hunting access enhancement programs.

Sunset provisions are attached to legislation so that new or experimental programs can operate for a trial period of time before being evaluated to determine if they are worth continuing. So that hunters and private landowners can judge for themselves whether these three hunter access enhancement programs are worthwhile, here is a brief summary of how each one has progressed over the past six years since 1995, when the enhancement programs were authorized.

Block Management

The best-known and most fully developed of the hunting access enhancement programs, Block Management has been in existence formally as a program since 1985. But it actually began informally back in the mid-1970s, when FWP staff began to recognize that public hunting access to private land was diminishing. Biologists were concerned that, without access, hunters could no longer effectively control big game populations. So the department began making it easier for private landowners to allow public hunting on their property by establishing walk-in areas, posting signs delineating public and private land boundaries, and publishing maps.

In the early years, the agency could only focus on small areas involving a few acres. But thanks to expanded funding and authority, FWP now negotiates access agreements with landowners throughout the state, often for up to five years at a time. For the 2001 hunting season, approximately 1,100 landowners enrolled nearly 8.6 million acres in the Block Management Program, and more than 180,000 hunters logged more than 356,000 hunter days of recreation on Block Management Areas (BMAs).

Block Management is a cooperative effort among FWP, private landowners, and public land management agencies to help landowners manage public hunting activities and provide free public hunting access to private and isolated public lands. The program's name refers to its goal of blocking together large areas of land under one system of access requirements, management objectives, and hunter-use rules. Cooperative agreements are negotiated among the landowner, FWP, and appropriate public land management agencies (such as the federal Bureau of Land Management) to deter-

DONALD M. JONES

Alan Charles coordinates landowner/ sportsman relations for Montana FWP

mine how public hunting access will be managed on lands under the landowner's control.

Landowners are provided with various benefits for enrolling land in the program, including compensation ($12,000 per year maximum), a complimentary resident AAA Sportsman's License (or, in the case of a nonresident landowner, a complimentary nonresident Combination License *or* compensation, but not both), limited liability protection, livestock loss reimbursement, and various hunter management tools. These include signs, maps, permission books, and, in some cases, the assistance of seasonal FWP staff to help manage the BMA.

FWP does not actually lease the lands enrolled in Block Management but rather contracts with individual landowners to determine how they will manage public hunting activities on lands under their control. The payments and other benefits help compensate landowners for any inconvenience that may result from allowing public hunting on private land. For instance, some landowners have to do additional noxious weed spraying due to more hunter traffic from weed-infested areas. Roads rutted from hunters' vehicles may require more maintenance, and increased public hunter activity may require a landowner to install additional fencing, gates, and cattleguards. Moreover, increased public hunting often means a landowner spends more time answering phone calls, helping retrieve downed game, and otherwise dealing with hunters.

WEINGARTNER RANCH
Block Management Area
Walk-in Hunting
No permission required
All hunters must sign in at roster box at the property in Long Gulch.

YOU'RE WELCOME: Block Management is one of several ways FWP helps hunters get access to private property.

SPARTASPHOTO.COM

Each year, by August 15, FWP publishes a list for each of the agency's seven administrative regions that provides information about lands enrolled for the current hunting season. Included in that information is each BMA's location and size, the opportunities offered, and the method for obtaining permission.

Not all BMAs are the same, and not all FWP regions administer the program the same way. Type I BMAs, for example, either allow hunters to sign themselves in or have no permission requirement. Type II BMAs are areas where someone other than the hunter administers permission. These are often areas that limit hunter numbers, require advance reservations, or have other hunter management restrictions.

Some FWP regions manage hunter information requests and reservations by automated phone systems. Other regions funnel all hunter permission requests through FWP staff specifically hired to buffer landowners from being inundated by too many hunter contacts. And some regions arrange self-help stations at regional headquarters where hunters can select maps and information for the areas where they might like to hunt. Thus, the Block Management Program has been adapted to meet the diverse needs of different hunters, landowners, and FWP administrations across Montana.

So far, it appears that people like what they're seeing and experiencing from Block Management. In 1997, FWP surveyed landowners and hunters to learn what they thought of the program (see sidebar at right). Since 1999, hunters have been asked to return postage-paid comment cards, which act as a sort of hunter's report card for each BMA hunt. Hunters are asked to answer several questions on the comment cards: Did you see the game being hunted? Did you bag any game (and, if so, what was it)? And would you rate your BMA experience as satisfactory or unsatisfactory?

For the 2001 hunting season, more than 12,500 of these cards were returned. Of the total number of people who returned cards, 76 percent indicated they

DUSTIN SMETANA

Block Management gets high marks from landowners and hunters

Results from a 1997 survey of landowners and hunters who took part in the program:

Landowners

97% thought the majority of hunters were courteous

96% said the majority of hunters abided by the ranch rules

94% said they'd like to continue participating in Block Management

80% were satisfied or very satisfied with Block Management

74% said Block Management was important or very important as a way of managing hunters on the farm or ranch

70% said Block Management was important or very important as a way of managing game numbers on the farm or ranch

62% said that Block Management had improved or greatly improved their relationships with hunters

Hunters

94% said BMA rules were reasonable

92% said BMA landowners were courteous

87% said BMA landowners were helpful

77% were satisfied or very satisfied with hunting opportunities on BMAs

72% found the game they expected to see on the BMAs they hunted

68% said Block Management improved landowner/sportsman relations

15% using Block Management hunted on five or more BMAs

had seen the game being hunted, 24 percent indicated they had bagged some type of game, and 81 percent rated their BMA experience as satisfactory.

Though most hunters like Block Management, that doesn't mean they all do. Some contend that BMAs are too crowded, lack the game animals they seek, or are poorly administered. Examples of comments from hunters dissatisfied with Block Management include: "Too many hunters!" "All the bucks shot out!" "Too many road closures." "You should publish one book with all the BMAs in the state in it." "All BMAs should have the same rules." "The map didn't show pasture fences or access roads—I got lost."

And some hunters simply don't like how the program has changed, in their minds, the traditional relationship between hunters and landowners. As one hunter noted, "I feel this program is going to lead to fee hunting of all private land."

Landowners, too, have mixed reactions to the program. On one hand, only 5 percent annually choose to not renew their Block Management contracts, and usually more landowners want to enroll in the program than funding can accommodate. On the other hand, some landowners don't like the program, such as those surveyed in 1997 who wrote comments such as: "Too many hunters!" "Hunters only want to shoot bucks, and I need does harvested." "I wanted deer hunters and only got bird hunters." "Every hunter wants to hunt on opening day." "Hunters seem to think that, just because I enrolled in Block Management, hunting on my land is a right, not a privilege." "My neighbor's Block Management hunters keep crossing over onto my land, which isn't in Block Management."

Is Block Management successful? Despite some criticism, it appears so, judging from hunter and landowner majority opinion. But whether it will continue in the future—and if so, what it will look like 10 years from now—depends on hunters, landowners, and other citizens working together with FWP to develop programs that meet the multiple needs of hunters and landowners in a rapidly changing Montana landscape.

NO ANTLERS, NO INTEREST: Some participating landowners don't like Block Management. For example, when asked to comment, one wrote: "Hunters only want to shoot bucks, and I need does harvested."

GARY LEPPART

Access Montana

Though Block Management is the most widely known, two other important FWP programs also help increase hunter access to hunting land. One, formally introduced as a program in 2000, is Access Montana, which operates under the same statutes and funding sources as Block Management. The program was spawned by a law that required, beginning with the 2000 hunting season, all

PHIL FARNES

NOT THAT SIMPLE: Much public land is surrounded by private property. The Access Montana Program helps establish access corridors so hunters can reach public land.

hunters who hunted on private land to obtain landowner permission beforehand. Before that time, only big game hunters were required to obtain landowner permission, unless the land was properly posted to signify that the landowner wanted all hunters to ask first.

The new law put more responsibility on the hunter's shoulders to ensure that he or she knew whether land was public or private. In response, FWP developed Access Montana to help reduce land access conflicts and help maintain and improve access to the more than 35 million acres of public land in Montana.

FWP staff members work cooperatively with private landowners, the federal Bureau of Land Management, the U.S. Forest Service, and the Montana Department of Natural Resources and Conservation to establish access corridors across private land to reach isolated public lands. In addition, the agency has hired seasonal staff to help mark public land boundaries that historically have been hard to find. Several regional Access Montana projects focus on public lands where existing public access does not exist or is threatened by changes in adjacent private land ownership.

The Access Montana Program has also produced several free publications to help hunters get access to public hunting land (see sidebar at right). And because disputes sometimes arise between hunters and private landowners over what land is public and what isn't, the program also has produced a form that hunters and landowners can fill out to document public land access conflicts so that FWP can help resolve them.

DONALD M. JONES

GOOD GUEST: By helping hunters gain private land access while promoting good behavior—such as closing gates so livestock stay put—the access programs improve relations between hunters and landowners.

Special Access Projects

Block Management and Access Montana have done much to enhance hunter access to private and public lands and improve relations between hunters and landowners. However, some additional access issues have arisen in recent years that those two programs weren't equipped to handle. Fortunately, the state Hunting Access Enhancement Program statutes also authorize FWP to initiate additional programs or efforts to improve hunter access. In 2001, the agency began developing the Special Access Projects Program, which focuses on regional species-specific hunting access needs. For example, some projects help local groups of hunters, landowners, and FWP staff find innovative ways to manage elk herds and public elk hunting on private land. In these cases, a hunt coordinator has been hired to help hunters gain access to elk during the hunting season. Other examples include regional projects focused on improving access for pheasant, waterfowl, and spring turkey hunters.

Though small in number, these and other special access projects fill a unique and important niche in FWP's efforts to improve hunting access and resolve issues between hunters and private landowners.

There is little question that hunters will find it increasingly difficult to find free hunting access in the future. Some landowners need to attract hunting fee revenue to compensate for low grain and stock prices. Others have grown less tolerant of irresponsible hunting behavior. And more hunters want to hunt exclusive fee hunting areas.

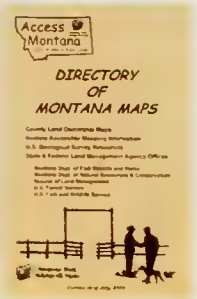
Obviously, it's beyond the ability of FWP to reverse these and other powerful social and economic trends. But the agency's hands aren't completely tied. It can continue to develop and manage diverse hunting access enhancement programs that benefit both the hunter and the landowner, trying to keep the gates swinging both ways. And by doing so, FWP can continue to work cooperatively with hunters and landowners to sustain Montana's hunting heritage and traditions.

For more information on the Block Management or Special Access Projects programs, contact Alan Charles at (406) 444-3798 or acharles@state.mt.us. For more information on the Access Montana Program, contact Michael Downey, FWP public land access coordinator, at (406) 444-3065 or mdowney@state.mt.us. ■

GARYKRAMER.NET

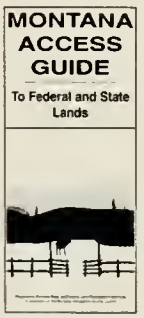
ROOSTER-ACCESS BOOSTER: As more and more upland areas are leased, access to private hunting lands becomes more valuable. Last year Montana FWP enrolled 8.6 million acres into Block Management, an area larger than some small states. Much of that land was in western Montana agricultural areas, which hold the state's healthiest ringneck populations.

Access Library



Directory of Montana Maps
A concise listing of county and state offices where land ownership maps can be obtained.

Montana Access Guide to Federal and State Lands
An essential guide to public land access policies, regulations, and resources in Montana.



Ninepipe Wildlife Management Area Map
A new, updated map that displays land available to public hunting access in the general vicinity of Ninepipe WMA, located in the Mission Valley near Ronan.

These publications are available free from FWP regional headquarters offices and the central FWP Field Services office in Helena. Call (406) 444-2602 for more information.

BIL HOLMES

When these merry little hounds take off after cottontails, it's mayhem on the range

BEAGLE MANIA!

By Bil Holmes

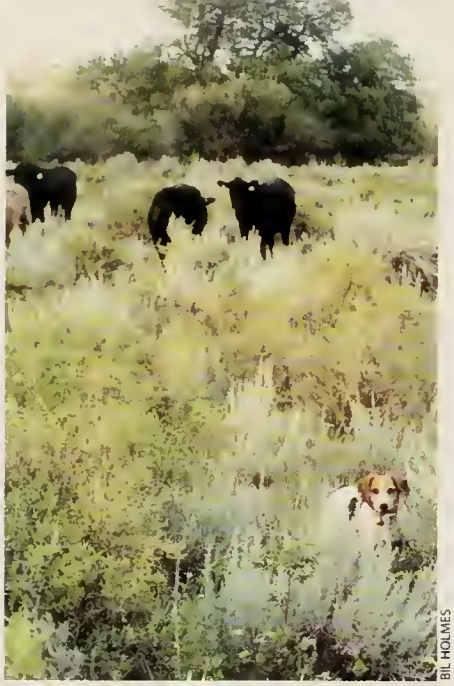
Late-summer rains triggered an explosion of greens in this eastern Montana prairie, creating heavy growth of sage on the flats and thick luxurious undergrowth along the creek bottoms. But now, with the first frost well behind us, the familiar smell of autumn is in the air. Though still green in a few places, patches of yellow and brown now dominate the landscape.

I am here ostensibly hunting cottontail rabbits with my beagles, but I quickly lose focus as the musty fragrance of frosted vegetation teases my mind into recollections of autumns past. Memories of carefree mornings, excited dogs, and hunting coats heavy with game cause a tingle of excitement to shoot up my spine. A mound of dew-covered prickly pear bristling in the morning light catches my eye, and I ponder how oddly out of place a cactus seems to me on a cottontail hunt.

Suddenly my musings are cut short, as Tazzy (short for Tasmanian Bunny Bouncer, her official A.K.C. moniker) cries out for the world to hear: "I have found a rabbit!" Nearly three years of age, this finely featured, tri-colored female is the best of my bunch, and she knows it. Tazzy loves leading the pack on a chase. More often than not she is the first to jump a rabbit from its bed and the first to regain the lost trail at a "check" (a break in the chase). And at the end of the day, Tazzy fully expects to ride home in the cab of the pickup seated on my lap.

Soon Angel and Gus join in the chase. Angel is the senior member of the pack. A serious hunter, Angel's only weakness is food, and that is apparent upon first glance at her chubby physique. Gus is the pup.

DONALD M. JONES


BIL HOLMES

His long droopy ears and brown solemn hound eyes energize instantly at a mere whiff of fresh rabbit scent.

A few minutes into the race, it becomes apparent by the short runs and small circles the rabbit takes through the heavy brush that we are on the trail of a doe (female) cottontail (males, called bucks, make much larger loops). This contest will take place in an arena less than one acre in size. The acre is bisected by Chippewa Creek, a small stream that only flows during spring run-off. However, there is plenty of standing water here, contained by dozens of old beaver dams. The beavers are long gone, but their work's ongoing value to the ecosystem is revealed in the diversity of vegetation, insects, and wildlife that now thrive here. Flanked on both sides by tall, open sage and greasewood flats, the riparian area contains aging box elder trees and patches of prairie rose and snowberry bushes.

Mixing up baby loops, side jumps, and short double-backs, the rabbit is only 10 yards ahead of the dogs, working slowly through the thick brush down toward the water. Entering a particularly thick jumble of tree limbs and old boards washed ashore by a rushing spring torrent, the cottontail lays down an intricate puzzle of tracks and then sneaks out the back door. This momentarily confuses the pack, creating a break in the action.

Angel finally teases out the lost scent and howls her discovery as she follows her nose, teetering out on a fallen box elder log angled across the creek. Midway over she encounters a snag and promptly topples into the water trying to slip her fat belly around it. Tazzy, hot in pursuit, sees her mentor's predicament and slows at the snag, only to be butted in from behind by Gus, my bull in the china shop. Now all three are dog paddling, sniffing along the log, and barking—silly as any Three Stooges slapstick routine.

Attracted by the ruckus, a small herd of black angus storms in to see what the disturbance is about. Plowing through to the front of the herd, a monstrous black bull bemoans his displeasure over the noisy interruption to his usually serene prairie domain. Fearlessly, the cottontail dashes through the cattle before cutting back into the heavy vegetation along the creek. Oblivious to their danger, the dogs follow the scent trail directly into the herd. Fortunately, the cattle are more curious than aggressive, and they simply stand their ground eyeballing the howling short-legged critters scrambling through the sage at their feet.

Beagles back home

Some of my fondest memories of adolescence are those of roaming the countryside with my dad and a beagle or two in pursuit of rabbits. This traditional style of hunting was a treasured autumn ritual in the rural Pennsylvania community where I grew up. After relocating to Montana in 1986, I spent years enjoying the pursuit of "exotic" big game animals such as elk, antelope, and mule deer. Those hunts were thrilling, but I could tell something was missing. It finally came to me as my middle daughter approached hunting age: We needed a beagle. Angel, a plump, long-eared hound pup, soon joined our family.

I patiently endured the derision of my hunting partners while I brought my young beagle on bird hunts, allowing time and experience to develop her hunting instincts into skills. Soon, however, their skepticism turned to respect as Angel wiggled into the thickest cover with ease, finding (and retrieving) downed sharptails, and flushing tight-sitting pheasants on par with their Labs—and at half the food bill.

All three are dog paddlin barking—silly as any Th

And oh those bunnies! Angel's trailing ability improved weekly. Soon she was racing after cottontail rabbits like a pro, working out complicated tangles of back-tracking, zigzags, and side jumps in the thickest of briar patches.

Cottontail rabbits are not widely appreciated as game animals in Montana.

SPARTASPHOTO.COM

Blessed with a long shopping list of huntable critters, it seems that hunters here have ranked bunnies near the bottom. Yet cottontails have a wide distribution and make delectable table fare.

Forsaken by human hunters for more glamorous game, Big Sky bunnies spend their nights fleeing foxes, weasels, coyotes, bobcats, and owls, and their days dodging hawks and eagles. At the foot of the food chain, these prolific breeders provide a vital food source for many Montana predators. Schooled in the art of escape, a cottontail is adept at running and hiding. If it survives its first year of

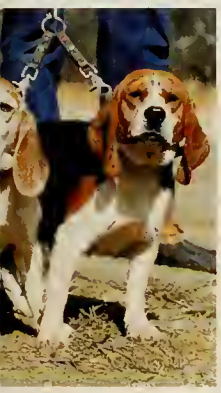
Bil Holmes is a physician and freelance writer in Lewistown

sniffing along the log, and Stooges slapstick routine.

life, a rabbit becomes a master of trickery when concealing its scent trail.

Enter the beagle. A pack animal, beagles are merry little dogs that make wonderful pets and enthusiastic hunting partners. These smallest of scent hounds weigh 15 to 35 pounds and come in an array of colors. Despite their hodgepodge of markings and hues, however, conventional wisdom dictates there is no bad color for a good beagle.

Relatively calm dogs, beagles are affectionate to children and always ready to keep you company. They are extremely intelligent, but their trainability is complicated by a strong desire to hunt and an occasional stubborn streak (which we beagle folk say "gives character"). Because of their acute sense of smell and good nature around people, they are often used as drug dogs to aid in detecting illegal contraband at airports and customs stations.



For countless generations these small hounds have been bred for sensitive noses to pursue game animals. Rabbits and hares travel in a circuitous route when pursued (called "circling"), rarely leaving their home range. This territory may be as small as an acre patch of thick brush for a doe rabbit, or more than 10 acres in the breeding territory of an ambitious buck. Early human hunters learned that by waiting quietly while their canine partners gave chase, there was a good chance the rabbit would circle back, often returning within a few feet of the initial jump site. This would give the hunter an opportunity to club, spear, arrow, net, or otherwise harvest the animal as it passed by.

In the 4th century B.C., the Greek author Xenophon wrote of small beagle-like hounds used to hunt hares on foot. It is believed that, later, Romans conquering Britain brought with them hounds that interbred with the indigenous hounds there. From here springs the lineage of beagles as we know them today. These small canine hunters crossed the Atlantic with the early American settlers and were used extensively to pursue small game, including rabbits, that were an important part of the settler's table fare.

Back to the chase

Gus's deep bawl-mouth howls mingle with Tazzy's high-pitched *chop-chop-chop* and Angel's baying in the brush on the opposite side of the creek—sweet music that must be experienced to be appreciated. After 15 minutes of hounds howling and crashing through the thick cover, the cottontail calmly hops out of the tangle of brush to the stream's edge, jumps in, and swims back to my side, beaching less than 10 feet away. Enthralled by these antics, I elect not to shoot and continue enjoying the race. A vigorous shake by the bunny sends a burst of water droplets into the air, backlit by the morning sun. Then off she goes, each bound sending smaller sprays of water into the air.

Tazzy knows this trick. Upon reaching the stream's edge she promptly jumps into the water and paddles across the narrow pool in hot pursuit. Angel quickly follows, but young Gus, reluctant to get back into the cold water, hangs up on the bank for a moment and whines.

BIL HOLMES

BIL HOLMES

Finally, unable to resist the excited barks and howls of the other dogs, he plows into the water and paddles across to join the chase.

Feeling pressured by the relentless pursuit, or perhaps just tiring of the game, the cottontail heads down an old badger dig just 30 yards (yet a full 30 minutes) from the original jump site. This maneuver always infuriates Angel. I really believe she thinks it is cheating. She relentlessly does her best to pursue the rabbit wherever it may go. This often leads to some clownish predicaments. There have been times I have had to reach my arm deep into a hole, where I was able to grab just the tip of her tail to pull her out. Also, I have had to extract her from dry beaver lodges, hollow trees, and abandoned farm equipment, and from under old buildings. Although reckless, this antic of Angel's is not always futile. Occasionally she brings the rabbit out with her.

Today she does her best to continue the chase down the underground, but fortunately her tubby butt is too big to fit very far into the hole. She backs out, front end covered in brown gumbo, giving me a disappointed frown. She knows the chase is over.

Later, on the way back to the pickup, a buck antelope snorts from a small rise two football fields away, letting us know we are trespassing. I marvel at the differences between beagling here in this western prairie paradise and the cornfields, hemlock swamps, and hardwood forests of the native eastern hunting grounds of my youth. Those haunts seem far, far away from this newfound land where I've chosen to work, live, and play. And yet, connected to my past by the baying of my hounds, I feel right at home. ■

"HUNTER AND BIG HORN SHEEP" BY CHILL WILLIS, COPYRIGHT WIN. CIRCA 1928.
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Heart of the hunt

Why hunters might want to reconsider how they explain themselves to others

By Thomas Baumeister, Ph.D.

Winchester artwork courtesy of Winfield Galleries, LLC.

It may be time for hunters to start talking about themselves differently. As coordinator of the Montana Fish, Wildlife & Parks hunter education program, I've listened to hundreds of hunters and hunting instructors over the years talk about hunting. When we hunters are asked to explain or justify hunting, more often than not we respond: "Because we're helping manage wildlife." If there were no hunting seasons, we explain, populations of deer, elk, and other wildlife would overrun their available habitat. The result would be land crowded with hungry deer and elk, followed by mass starvation among the overpopulated animals. Hunting, we tell ourselves and others, prevents that from happening.

This traditional rationalization of hunting is certainly based on fact. It is true that the only way to effectively manage populations of many large ungulates is through regulated hunting. The alternative would indeed be depredation and massive starvation. But as a way to really explain what hunting is about and why a hunter feels so passionately about his or her activity, this wildlife management explanation, as I call it, falls pitifully short.

So what? Who cares whether or not hunters can adequately explain why they rise out of bed before dawn on a cold November morning, or what accounts for their willingness to pursue an elk mile after mile, hour after hour, with no more than the hope of catching a glimpse of their prey? It may not matter. But I think it does. I strongly believe that unless hunters can better understand why they love to hunt, and then explain that passion to nonhunters, hunting as we know it may not survive.

Changes appear inevitable

I say this despite knowing that hunting continues to reign in Montana. More people hunt here, per capita, than in any other state, according to a 2001 survey conducted by the U.S. Fish and Wildlife Service. If you hunt in Montana, this is good news. It shows that hunting continues to thrive in a state that continues to provide excellent hunting opportunities.

However, these good times may not last. Nationwide, the number of hunters is declining, and per capita participation is dropping even faster. In 2001, only 13 million Americans bought a hunting license—almost one million fewer than in 1996. Since 1975 the number of participants as a percentage of the U.S. population has declined steadily, and the trend is forecasted to continue.

Nationwide, hunting continues to be outpaced by more popular activities such as golf and wildlife observation, and that trend may show up in Montana sooner than we think—if it hasn't already.

The face of Montana is changing. According to the 2000 U.S. Census, Montana's urban counties grew over the previous 10 years while rural counties lost residents. Research has shown that people who grow up in urban areas are less likely to hunt than those from farmsteads. Urban- and suburbanites who aren't raised in the hunting tradition may view hunting as something strange, or even repulsive or dangerous. For every nonhunter who moves into a Bozeman suburb, it seems there's a hunter leaving a ranch on the Hi-Line. That doesn't bode well for hunting's future, even in such a pro-hunting state as ours.

Moreover, public disapproval for hunting continues to increase across the country. Over the past few decades, many groups have successfully portrayed hunting as a medieval, if not barbaric, activity that lacks relevance in the United States today.

But that's in New York, right? Or Portland. Why should anyone who hunts in Big Sky Country care about such matters? After all, hunting is still a way of life here.

True. Which is why I think that it's important that we who hunt in Montana articulate what we are about. This is a state where hunting is still a core element of the culture. If those of us who hunt here can't explain ourselves to others, then how can we expect hunters in Seattle or Cleveland to do so? If we Montana hunters don't understand ourselves as hunters, then who will?

It matters that we work harder to convey to nonhunters the essence of hunting. Montana is no island. Hunter numbers are declining nationwide, as is public acceptance of hunting. Hunting's future in Montana may ultimately depend upon hunters' ability to successfully communicate why they hunt and to show how hunting is an expression of core values shared by many, if not most, Americans.

Nonhunters may still not want to pick up a rifle and join us. They may not even agree that hunting is okay. But I think they will be more likely to assent to our desire to hunt if we've at least made the effort to explain to them who we are, what we're about, and why hunting is so important to us.

I believe that traditional justifications for hunting given by hunters and state and federal conservation agencies are no longer persuasive to

an increasingly skeptical public. For decades, the value of hunting has been assessed almost entirely in terms of ecological contributions—along with some mention of the economic value of hunting to rural communities and our responsibilities to be stewards of the land. These justifications are certainly valid, but they don't fully capture the range of reasons why people take to the field. The fact is, most hunters don't hunt to support rural communities or to aid in managing or conserving wildlife. These are byproducts of an activity motivated by deeper, more personal values.

For more than a century, scholars and writers have been trying to puzzle out what motivates hunters. They have made thoughtful and complex investigations into the motives for an activity that, in a modern world, defies simple explanation. By understanding and thinking about these reasons, we hunters may be able to better understand our own reasons for hunting, and, in doing so, may be able to more successfully explain ourselves to others.

Why chase game?

Scholars have suggested three possible explanations for why hunters hunt, which I would summarize as: tradition, interaction with nature, and self-reliance.

The first explanation for hunting is that it's a way to maintain a long-standing and venerable cultural tradition. For many, hunting is a way to recapture, if only briefly, a sense of life in a simpler time. It offers an escape, though temporary, from the stress and anxiety of living a complicated life largely determined by the pace of technology and commerce.

COWBOY WITH ELK, ARTIST UNKNOWN, CIRCA 1909

The second explanation of hunting's appeal is that it demands an honest and unsentimental interaction between humans and nature. Many hunters believe that hunting teaches them about the fundamental relationship between humans and the natural world. Certainly other activities bring a person close to nature, but few of them demand the level of intimate interaction and engagement that hunting does. I contend that most nonhunters don't understand the true cost of living, because so few are directly involved in food production. Most people simply go to the local grocery store when the fridge is empty; they let someone else do the killing. Hunting is a way to reassert the role of the individual in sustaining his or her life. It is a means of taking direct, personal responsibility for one's own food in a way that satisfies body, mind, and soul, and in a way that can foster a respect and reverence for the source of that food.

The third major value of hunting noted by scholars is that it embodies the American tradition of pioneering and self-reliance, which have defined the American character for nearly two centuries. Hunting is one way to reassert a commitment to these ideals. Though hunting today is often a symbolic act (the game taken may make only a token contribution to a family's entire food intake), it is also a means of actually practicing self-reliance, of providing for oneself through hard work, skill, knowledge, and tenacity.

Rather than expressing a primordial urge to kill and dominate—as it is often depicted—hunting is actually an affirmation of certain deeply held social values about self, responsibility, virtue, work, and the American identity.

The values that underpin these three deeper explanations of hunting apply not only to hunters. I believe they also may resonate with those who would never carry a bow, shotgun, or rifle. Many nonhunters crave tradition and the escape from the frenzied modern world. Similarly, many seek intimate contact with nature, be it with a pet, through gardening, or simply by hanging an Audubon calendar on their office wall. Moreover, most Americans value the pioneer spirit and self-reliance; we've run out of new lands to discover, but we still tend to seek out new things, to develop novel techniques or products, and to desire independence.

By thinking about the ways that hunting expresses and arises out of these core values, and by discussing these thoughts with nonhunters, hunters may be able to make a more compelling case for the value of hunting, and the hunter, in the modern world.

The uniqueness of Montana

I think it's possible for nonhunters to understand what motivates their neighboring hunters. And I think it's most possible in Montana. Here is a state where the tradition of hunting is not just tolerated but celebrated. Though it has cities, symphonies, football stadiums, and cyber cafes, this is also a state that retains much of the old America, which for many people adds to its appeal. In Montana, nature in all its wildness is present and (almost) complete. Here people imagine that they can find a simpler life, an intimacy with nature, and some small share of self-reliance. Hunters and nonhunters are each in their own way drawn to this land. The attraction to nature is as strong in a Kalispell bird watcher as it is in a Libby elk hunter. How they express this attraction—in word and in deed—is what makes them different.

Which goes to show that a hunter in Montana is not unlike anyone else in Montana—longtimer or newcomer. The hunting tradition does not rely on values foreign or incomprehensible to the general population. Rather, hunting reinforces core social values shared by most of us living in or visiting Montana.

Hunters' motives for taking to the field may be deeply personal, but those motives are not unique to just hunters. If we hope to continue hunting, we need to better understand—and articulate—what drives us from the warmth and light of civilization into the imponderable cold and darkness of the pre-dawn Montana wilderness. I believe these impulses are the same ones that draw gardeners out to their plot, birders into the woods, and urban refugees to the Bitterroot Valley. It's our duty as hunters to point out these links between ourselves and all others who value tradition, nature, and independence. They need to understand that we are not hunting alone. ■

The author wishes to acknowledge the contributions to this essay made by Ashley Preston, professor at the College of Humanities and Science in Tempe, Arizona.

Thomas Baumeister coordinates the FWP Hunter Education Program

Cash register CON$ERVATION

Each year in Montana, $1 billion is spent on hunting, fishing, and wildlife watching. Can FWP maintain a supply of fish and wildlife to keep up with the demand?

By Tom Dickson

STOCKED FOR THE SEASON: Like other outdoors retailers, business is booming at Big Bear Sports Center in Great Falls.

IT'S EARLY ON A SATURDAY MORNING IN October, and Howie Stromberg's gas station and sports shop in Havre is buzzing with business. Gas and snacks are the main trade, but many of the hunter and angler customers are also stocking up on bait, lures, binoculars, scopes, ammunition, or other gear. "Each year I sell $100,000 just in hunting and fishing licenses," says Stromberg. "When the fishing and hunting are good around here, business is good."

Welcome to Montana's growing fish- and wildlife-based economy. Each year, according to recent federal and state studies, hunters, anglers, and wildlife watchers spend a total of more than $1 billion (that's *billion*, with a *b*) in the Treasure State. That spending supports the equivalent of 8,100 full-time jobs, ranging from hunting outfitters and fishing guides to cafe waitresses and motel owners. Many of the purchases are small—$5 for minnows to fish walleyes at Fort Peck, $20 for gas to hunt muleys in the Cabinets—but they add up. For example, in 1996 wildlife watchers spent $10 million in Montana on wild bird food, and hunters spent over $15 million on firearms and ammunition. The tab for fishing bait alone was $2.6 million.

That's not all. Some massive fish- and wildlife-related expenditures aren't even included in the $1 billion figure. Recently construction began on a new $20 million warmwater fish hatchery at Fort Peck, which will produce dozens of construction jobs and, local boosters hope, reinvigorate the Glasgow-area economy. And earlier this summer, the Rocky Mountain Elk Foundation announced it would build a new $12 million headquarters in Missoula. The national conserva-

tion organization currently employs 90 staff members there, paying nearly $4 million per year in salaries.

All this growth is good news, but it doesn't come free. Montana Fish, Wildlife & Parks (FWP) is responsible for sustaining the state's fish and wildlife populations, which support that spending and economic growth. Funding this work is crucial not only to the state's fish and wildlife resources, but also to the thousands of Montana businesses that depend on hunters, anglers, and wildlife watchers each year.

Surprisingly, however, only a small part of the $1 billion in spending goes back into the fish and wildlife resource base that supports it. Hunring and fishing licenses pay for most of the state's fish and wildlife management. Yet the purchase of hunting and fishing licenses makes up just 4 percent of the $1 billion total.

"For some reason, many people think spending on hunting and fishing all goes to FWP," says the agency's director, Jeff Hagener. "But the fact is, we're getting a pretty small slice of that."

What that means, says Hagener, is that Montana's fish and wildlife management needs to maintain adequate funding. Otherwise, the resource base supporting the spending will dwindle.

"Every industry has to reinvest money into what makes ir thrive," says Hagener. "Montana needs to be sure funding for fish and wildlife management keeps up with the demand for those resources."

Federal survey results

Measuring that demand is done by the U.S. Fish and Wildlife Service, which earlier this year issued preliminary findings from a survey of hunting, fishing, and wildlife-based recreation in the United States. According to the study, conducted every five years since 1955, hunters, anglers, and wildlife warchers spent a total of $110 billion in the United States in 2001. Montana's share of that market was $1 billion. (FWP's Responsive Management Unit staff, who also conduct expenditure surveys, verify the $1 billion figure, though they estimate it's a bit low).

Most ($580 million) of the spending on hunting, fishing, and wildlife watching is for trip-related expenditures, such as gas, food, and lodging. That's money going into the till at places like Sam's Supper Club in Glasgow, where co-owner

TOM DICKSON

EAT, SLEEP, SPEND: Most expenditures ($580 million) go to cafes, motels, and gas stations across the state.

Diane Brandt says folks from across the country stop in for a meal on their way to the area's abundant hunting grounds and fishing waters.

"Just last night we had someone eating in here who was a pilot," Brandt says. "He'd just flown a guy in from California for the sharptail opener."

Jean Hough, who with her son owns three motels and a restaurant in Broadus, 80 miles south of Miles City, considers hunting essential for her businesses. "We don't have a lot out here to attract visitors, either out-of-staters or Montanans," Hough says, "So it's a big deal for us to have these hunting seasons."

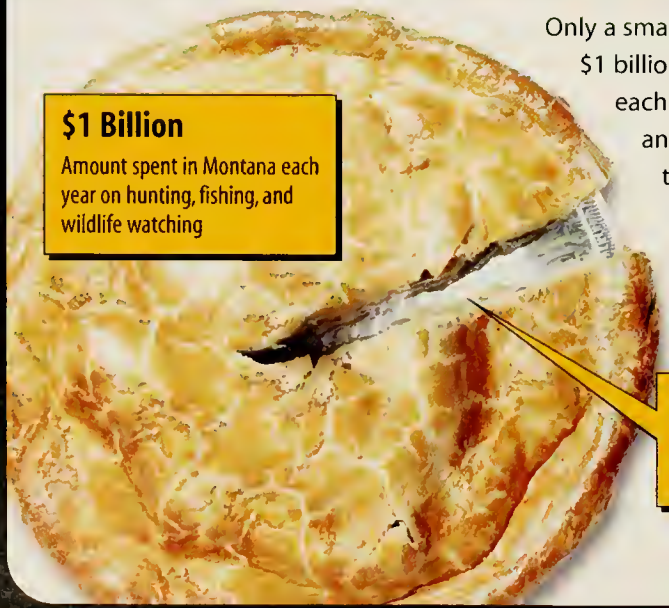
Fishing is an even bigger deal for the legendary Dan Bailey's Fly Shop in Livingston. Located in what many anglers nationwide consider a mecca for fly-fishing, Bailey's has thrived on the area's reputation for scenery, clean water, and access to big and abundant wild trout.

"There's no question that strong trout populations and good fishing are essential to businesses like ours," says owner John Bailey.

And the economic effects ripple out like rings from a trout rise. Guides' clients buy fishing gear at local fly shops. Taxidermists pay to have hides prepared at Montana tanneries. According to Jean Johnson, executive director of the Montana Outfitters and

Tom Dickson is editor of Montana Outdoors

A small slice of the $1,000,000,000 pie



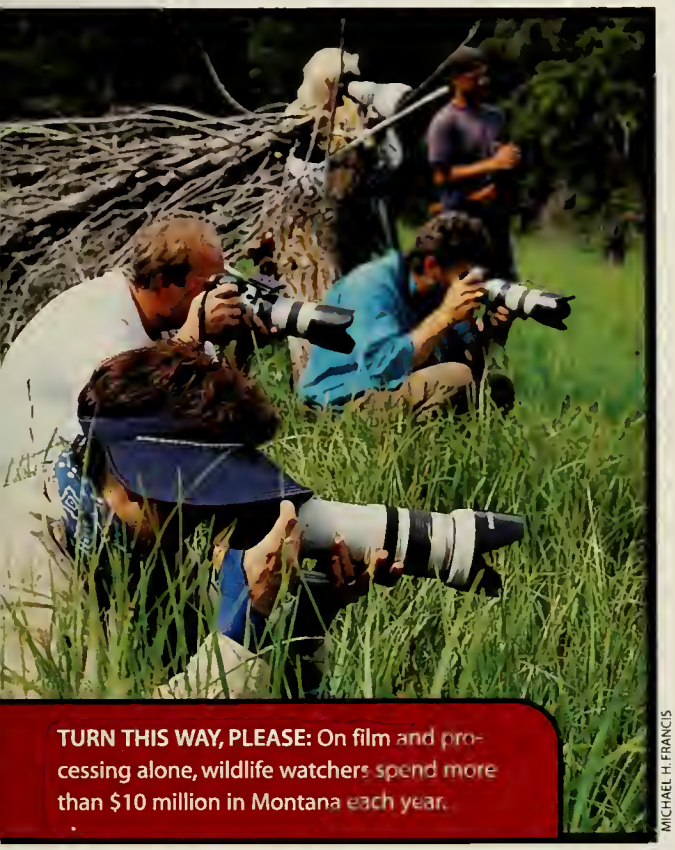
$1 Billion
Amount spent in Montana each year on hunting, fishing, and wildlife watching

Only a small percentage of the $1 billion spent in Montana each year on hunting, fishing, and wildlife watching goes to manage the fish and wildlife that support those economically important activities.

4% ($40 million)
Percent of that total spent on hunting and fishing licenses

MONTANA OUTDOORS

Guides Association, an outfitter gets, on average, roughly $2,500 for a nine-day wilderness elk and deer hunt. Most of the fee, however, goes to pay other Montana businesses that provide support. "That money gets spread throughout the community," says Johnson. "It pays for the horses, mules, vet bills, truck, trailer, halters, saddles, tents, stoves, food, fuel—the list just goes on and on."



TURN THIS WAY, PLEASE: On film and processing alone, wildlife watchers spend more than $10 million in Montana each year.

MICHAEL H. FRANCIS

And it's not just the hook-and-bullet crowd that's opening its collective wallet. Those who ogle animals spend amply too. A 2001 study by the University of Montana Institute for Tourism and Recreational Research (ITRR) found that wildlife watching was the single most popular outdoors activity among Montana's visitors. That doesn't surprise Karen Hooker, co-owner of WTR Outfitters in Ovando, who has seen a growing number of summer customers come to watch wildlife on horseback. "I'd say that over the past several years, our summer trade has been growing stronger than our fall hunting trade," she says.

What's more, resident Montanans also spend freely on binoculars, spotting scopes, and related items for bird watching. Bill Caras, owner of Caras Nursery and Landscape in Missoula, says he sells "literally tons of birdseed each year," along with hummingbird feeders, bird baths, and fruit-bearing plants that attract winged visitors to backyards.

Add to that the value to Montana when businesses tout the state as they pitch their hunting or fishing store or products to national markets. Mike Ewing, head of sales and marketing for Twin Bridges–based Winston Rods, says the rod manufacturer has spent "hundreds of thousands of dollars, if not millions, promoting Montana and Dillon," where the company employs 40 people.

Millions. Billions. The money pouring into and across Montana on hunting, fishing, and wildlife watching is staggering. Yet perhaps the most valuable aspect of these activities can't be measured on a spreadsheet. According to Richard Barrett, an economist at the University of Montana and co-author of *Post-Cowboy Economics*, the worth that someone places on his or her ability to go hunting, fishing, or wildlife watching is actually a type of "income" as important to Montana as the amount of money that person spends.

"These activities have a substantial public value that needs to be factored into any discussion of Montana's economy and standard of living," Barrett says.

Montana's market niche

Such discussions may be forthcoming. Montana's valuable fish and wildlife resources appear to be increasingly important to the state's economic future. Though extractive industries like mining and logging remain essential elements of

Let the registers ring

How the spending* breaks down, by activity and category:

Fishing ..... $422 million

Trip-related expenditures**	$200,000,000
Equipment	$109,000,000
Other *(leases, licenses, etc.)*	$113,000,000

Wildlife watching ..... $391 million

Trip-related expenditures**	$207,000,000
Equipment	$157,000,000
Other *(leases, licenses, etc.)*	$27,000,000

Hunting ..... $300 million

Trip-related expenditures**	$171,000,000
Equipment	$97,000,000
Other *(leases, licenses, etc.)*	$32,000,000

Figures cited are for 2001. Actual total is $1,113,000,000.
*Source: U.S. Department of Commerce and the Department of the Interior except where otherwise noted.
**Source: Montana Fish, Wildlife & Parks

And then you need a new truck to put it in

Some specific annual expenditures* on hunting, fishing, and wildlife watching in Montana:

Ice for fishing	$1.6 million
Bait	$2.6 million
Camping equipment	$4.2 million
Ammunition	$6 million
Rods and reels	$7.5 million
Firearms	$9.4 million
Bird food	$10 million

*Figures cited are for 1996.
Source: U.S. Department of Commerce and the Department of the Interior

DICK DICKENSON

BIG BUCKS FOR BIG BUCKS: Resident and nonresident hunters spend $300 million each year to pursue deer, elk, bear, and other wildlife.

Montana's economy, they have been in decline for decades. Meanwhile, interest in the state's elk, trout, deer, and other critters continues to grow. Fish- and wildlife-related expenditures grew 50 percent between 1996 and 2001, reflecting a booming market in those activities. What's more, hunting, fishing, and wildlife watching are nonpolluting, growth industries that use renewable natural resources, says John Gibson, president of the Montana Wildlife Federation. They also have helped create for Montana what is known in business as a market niche.

"The unique conditions we have here—wilderness areas, clean rivers, record numbers of elk and deer—these are not what you see in Chicago or Los Angeles," Gibson notes. "Our wonderful fish and wildlife resources are a large part of what makes this state so attractive."

Such marketable amenities didn't happen by accident, however. The state has built a national reputation for progressively managing its fish and wildlife to provide high-quality angling and hunting experiences for residents and visitors alike. For example, since it stopped stocking trout in rivers in 1974 and began managing for wild trout, Montana has become the preeminent destination for fly anglers from throughout the country. As Steve Moyer, vice-president for conservation programs at Virginia-based Trout Unlimited, notes, "there's just no question that discriminating anglers out here put a premium on fishing for Montana's wild fish. States that stock hatchery fish just don't compare."

What attracts outsiders to fish and hunt in Montana may also convince them to move here—and bring their businesses along. After all, says Barrett, taxes aren't the only consideration a business owner makes when deciding where to relocate. "You have to factor in how much these activities contribute in creating an environment where people want to do business," he says. "For example, look at all the doctors in Livingston, and at how we've now got this major medical industry in Billings that seems to center on the high-quality trout fishing the area offers. Those doctors could be making more elsewhere, but they are electing to live in Montana."

Driving the enterprise

Key to Montana's appeal—and the resultant spending—is a strong base of fish and wildlife. Healthy fish and wildlife habitat, say conservation leaders, support the nation's entire hunting, fishing, and wildlife watching industry. "Clean water and healthy populations of fish and wildlife are to hunting, fishing, and wildlife watching what electricity is to the computer industry," says Roger Holmes, past president of the International Association of Fish and Wildlife Agencies. "They drive the entire enterprise."

That's not just theory, either, says C. B. Schantz, co-owner of Red Rock Sporting Goods in Miles City. "If you looked at all the cafes and stores in this area that rely on hunting and fishing you'd know there's a direct relation between fish and wildlife populations and the businesses around here," Schantz says.

Elk and trout are two notable examples of how that relationship has helped local Montana economies. According to Don Laubach, owner of the legendary Town Cafe, Motel, Lounge and Gift Shop in Gardiner, there weren't many elk around the area when he bought his operation in 1965. "The town pretty much closed

"These activities have a substantial public value that needs to be factored into any discussion of our economy or standard of living."

—Richard Barrett, UM Economics Professor

PAUL F. UPDIKE

down in winter back then," he says. But since the late 1970s, when FWP began a late-season hunt to thin burgeoning numbers of elk leaving Yellowstone National Park each January, he has been able to keep his business open throughout the winter, employing 20 people full-time.

Similarly, Bailey's fly shop business has grown over the past 30 years as the waters in the nearby Yellowstone River have grown cleaner and the trout populations healthier. "When I was a kid," Bailey says, "you couldn't even fish east of Livingston because of the water pollution coming out of town. Now there's great fishing almost to Billings."

On the flip side, however, a decline in fish or wildlife populations can hurt local businesses. For example, some outfitters near Yellowstone National Park say a recent decline in local elk numbers—due, they maintain, to grizzlies and wolves—has hurt business. And in the mid-1990s, after reports of whirling disease in the Madison River hit the national sporting press, Glenn Gallentine watched his trout fishing trade fall off by 20 to 30 percent per year. "It was a tough time in Ennis," says the manager of Tackle Shop Outfitters, one of two trout shops in the small tourist town. "And it wasn't just us. Grocery stores, cafes, motels—they were all hurting."

Gallentine says the trout populations and the largely fishing-based tourism trade have since bounced back, but the scare left deep financial scars in the community.

KEVIN BROOKE

DUN SPENDING: After the Madison River whirling disease scare, fishing businesses in Ennis suffered. Trout population recoveries have helped most of them rebound.

Habitat and management are essential

Though diseases are a grave concern, the biggest threat to fish and wildlife populations is habitat loss and mismanagement. That's why state conservation officials, while welcoming reports of Montana's hunting and fishing bull market, point out that all this spending and earning would not take place without effective fish and wildlife management.

By monitoring populations, protecting habitat, and improving access, say agency officials, FWP has been able to sustain the state's fish and wildlife populations and provide the recreation worth so much to Montana's economy. The big question now is: For how much longer?

"The pressures on Montana's fish and wildlife resources, which fuel the spending, goes up each year," says Hagener. Improved gear makes hunters and anglers increasingly more effective. Development can eat away at habitat that fish and wildlife need to survive. Landowners increasingly post "No Hunting" signs.

"It's essential that we keep up with that pressure and continue to scientifically manage fish and wildlife, conserve habitat, and provide access," Hagener adds. "Otherwise, there will come a point where the fish and wildlife resource won't be able to keep up with the public demand for it."

Which could mean more than just a loss of revenue. Though hunting and fishing add income to the economy, the real worth of these activities may go beyond what can be measured on a federal tax form.

"When you think about it," says Schantz, the Miles City sports store owner, "Montana doesn't have much to keep young people here. At least now they grow up with some of the best hunting, fishing, and hiking in the world, so maybe they'll want to stay even though the jobs don't pay well. But if something ever happened to the fish and wildlife, you'd have to ask yourself: Why else would a kid want to stay in Montana?" ■

MANAGING TO KEEP UP: Fish and wildlife management—such as electroshocking trout on the Big Hole River to monitor populations there—helps sustain the fish and wildlife populations that support the hunting, fishing, and wildlife watching economy.

On the front lines

As the grizzly population expands, more Montanans are coming face to face with the emboldened bears

By Bruce Auchly

BAD NEWS BEARS: Owning a sheep ranch just a few miles from the Rocky Mountain Front, Leanne and John Hayne have had grizzlies threaten their ewes and wander into their backyard. "I think grizzlies are cool," says Leanne. "But there has to be a management program in place that allows people who live near bears to relax." Photo by Larry Beckner.

Leanne Hayne remembers everything about the May evening three years ago when she decided it was time for Montana to change the way it managed grizzly bears. It was getting near twilight when Leanne—who raises sheep with her husband, John, about 35 miles north of Choteau—stepped out of the couple's red colonial-style home to investigate their dog's incessant barking. The Hayne house sits in a clearing, surrounded by chokecherry bushes, along Dupuyer Creek. To the west towers the Rocky Mountain Front. This idyllic setting—complete with chickens, flowers, and vegetable garden—serves as headquarters for the couple's sheep ranch and on-line yarn store. It's also a magnet for wildlife.

As she walked out onto the back porch, Leanne saw an adult grizzly bear standing just 10 yards away. The bear didn't charge, but it didn't run away either. Showing no fear, it just stared at the slender woman and her barking dog.

"I had shivers right here at the base of my skull move down my spine," she says. "That's when I realized that these huge beasts have to fear humans, that maybe it's time to reconsider a hunting season."

The grizzly population along the Rocky Mountain Front has begun spilling out to the east, into areas where the large animals haven't lived for more than a century, says Mike Madel, Montana FWP grizzly bear management specialist. Complaints by ranchers, farmers, and others along the Front have also grown over the past decade, despite increasing efforts by the agency to prevent conflicts between bears and humans. It's time, say many area residents, to bring back the grizzly hunt.

LARRY BECKNER

BAD MEMORIES: During the summer of 1999, at least six grizzlies came near the Haynes' house. The bears showed no fear, forcing the couple to erect electric fencing around their homestead.

Montana hasn't had a grizzly bear hunting season since the spring of 1991, when anti-hunting organizations successfully petitioned a federal court to halt the state's grizzly season. Montana FWP would like to see a limited hunting season restored as part of its comprehensive strategy to manage grizzlies.

"We're already doing a lot to manage grizzly bears," says Glenn Erickson, chief of FWP's Wildlife Management Bureau. Currently, he says, biologists redistribute carcasses of dead livestock away from ranches and towns into remote areas; trap and transfer nuisance grizzlies; and help landowners erect and pay for electric fencing around bee hives and sheep bedding grounds. They also work with other public land managers and conservation organizations to create refuge areas in forests where bears won't be disturbed and pushed into places humans frequent.

"A regulated hunting season—used only when necessary and biologically justifiable—would give us another tool in our management toolbox," says Erickson.

Though a season would be severely limited and would not reduce overall grizzly numbers, adds Madel, "it would increase wariness among bears and could reduce problems during years with poor berry production when bears move down into farms and ranches to find food."

Reviving a hunt, however, would be neither easy nor without controversy. Andrea Lococo, for one, would do whatever she could to stop a grizzly season.

"Unacceptable," says Lococo, Rocky Mountain coordinator for The Fund for Animals, the anti-hunting organization that convinced a federal judge to stop Montana's grizzly bear hunt. According to Lococo, grizzlies face far too many other threats, such as habitat loss and

HEADING EAST: Bear biologists say the grizzly's range is increasingly slightly and expanding out of the Rocky Mountain Front into lower-elevation areas inhabited by livestock and humans.

MICHAEL JAVORKA

poaching, for even limited numbers to be taken by a hunting season.

Chris Servheen, grizzly bear recovery coordinator for the U.S. Fish and Wildlife Service (USFWS), confirms that many legal obstacles could prevent the resurrection of Montana's grizzly season. Servheen says that even if the species were removed from the federal endangered species list, a hunting season wouldn't happen for years and years afterwards. If ever.

PHOTO BY TIMCHRISTIE.COM

NEVER AGAIN? Animal rights groups say they denounce grizzly hunting because the bears face too many other threats, such as habitat loss and poaching.

Continental range

Grizzlies once lived and roamed from Alaska and Canada to Mexico, from Pacific Ocean beaches to the Great Plains. The first scientific observations of the grizzly came from the Corps of Discovery. So aggressive was the grizzly that Meriwether Lewis decided it was a different species from the black bear.

"I would rather fight two Indians than one bear," Lewis wrote in 1805. "The men are becoming very fearful of the grizzly."

Though there is no way to accurately estimate the animal's population 200 years ago, biologists guess it was between 50,000 and 100,000 bears. Then, over the next century and a half, grizzlies in the lower 48 states were shot, trapped, and poisoned to near extinction. By the early 1970s scientists agreed that the number of grizzlies had dwindled to less than 1,000 in the contiguous United States, and the animal was listed as a federally threatened species there in 1975. Because Montana's grizzly population was strong, and the state had been managing the bears successfully for decades, it was able to hold a limited hunting season until 1991.

The number of grizzlies has risen over the past several decades. Now it's probably somewhere between 1,000 and 1,500 animals, say biologists. The two areas with the largest grizzly populations are the Greater Yellowstone Ecosystem (GYE) and the Northern Continental Divide Ecosystem (NCDE), which includes Glacier National Park. Current estimates put the GYE population between 400 and 600 grizzlies, and the NCDE population at 400 to 700. In other words, most of the grizzlies in the lower 48 states call Montana home.

Each year, that home appears to be growing a bit larger, as more grizzlies range out of their historical refuge in Glacier National Park and the Bob Marshall Wilderness. "The population is both increasing slightly and expanding its range eastward," says Madel, who, like FWP's other grizzly specialists in Kalispell, Missoula, and Bozeman, works with area landowners and grizzlies. According to Madel, the bears that bother the Haynes or move even farther east are either young ones looking to set up a home range or adults forced out onto the prairie by seasonal food shortages, such as a chokecherry crop failure. As grizzlies expand both their population and home ranges, Madel is finding bears in places not seen in 100 years or more.

"We caught a yearling male this year almost out to Valier, close to Lake Francis," Madel says. That's smack dab in prairie country, not where people typically think of grizzlies roaming.

Into Dupuyer

Such sightings come as no surprise to the Haynes, whose 3,000-acre ranch lies on the north edge of Dupuyer, a town of about 70 that hugs the prairie roughly 15 miles from the eastern front of the Rockies. When both were growing up in Dupuyer during the 1950s, there were no bears along brushy Dupuyer Creek, a small stream that springs from the mountains and spills onto the plains.

"When I was a kid," Leanne says, "I spent all my rime down there."

Times have changed. As the grizzly population has expanded east along the Dupuyer Creek corridor, parents no longer let their children play along the stream.

With roughly 300 ewes, the ranching couple knows about predators. Coyotes, mountain lions, black bears, and golden

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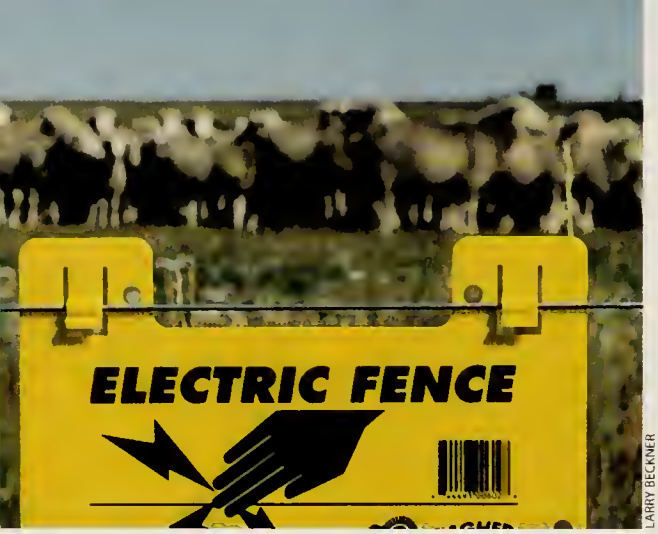
Bruce Auchly, an FWP information officer at Great Falls, is a frequent contributor to Montana Outdoors



LARRY BECKNER

CHARGED ISSUE: Feeling threatened by what they see as unchecked population growth, more ranchers erect electric fencing to keep grizzlies away from livestock. Many wonder why hunting can't also be part of the state's management program.

eagles are part of the sheep business. Grizzlies, however, are a new component. During the summer of 1999, at least six grizzlies came right into their yard. John recalls saying, "The next one in my yard I'm gonna shoot." He eventually did fire off a shotgun barrel full of 12-gauge birdshot to scare away a female bear that came close to the house.

For Leanne, that particular night was her most terrifying encounter with grizzlies. "A female and a cub were in the chicken yard, probably eating chicken feed," she says. "The dog was barking at the bears, and the female bear was roaring at the dog."

Alone at the time, the frightened rancher ran back into the house and started calling everyone she could think of: the Pondera County sheriff, the local FWP game warden, Madel. By the time help arrived, the bears were gone, only to return early the next morning. That's when John, who by this time had returned home, fired off the birdshot.

The Haynes point out that they value wildlife and have preserved land as habitat for birds, deer, and other wild animals. They just had no idea that the same habitat would also attract grizzlies, and that the bears would be so bold.

"They should at least be afraid of humans," John says. "But you're yelling, and the dog's barking, and they just stand there and look at you."

Six months later another bear came into the yard, showing no fear. That prompted the Haynes to erect an electric fence around the three acres where their house sits, splitting the cost with FWP. Previously, they had put up an electric fence around a one-acre sheep bedding ground, dividing the cost with the agency and Defenders of Wildlife, a Missoula-based conservation organization. Out of their own pocket, the Haynes have also installed an electric fence around a sheep summer pasture.

Why no hunting?

The Haynes now sleep better at night, but electric fences are not the only solution they and many other East Front residents are looking for. What they want to know is why, if state biologists say a healthy grizzly population is expanding from the Rockies onto the prairie and interfering with home and ranching activities, Montana can't re-institute a limited hunting season.

There are no easy answers, says Madel. Because the grizzly is a federally listed species, the state of Montana has no authority to allow for a hunting season. So unless the species is de-listed and full management authority reverts back to the state, there's not even the possibility of hunting.

What would it take to remove the NCDE grizzlies from federally threatened status? For one thing, the state would need legally defensible data showing that the population is healthy and increasing. Madel and other FWP biologists know the NCDE population is growing and expanding. But Servheen, the federal grizzly bear recovery coordinator, says the USFWS will needs better grizzly bear population data that would stand up to the inevitable lawsuits that anti-hunting groups would file.

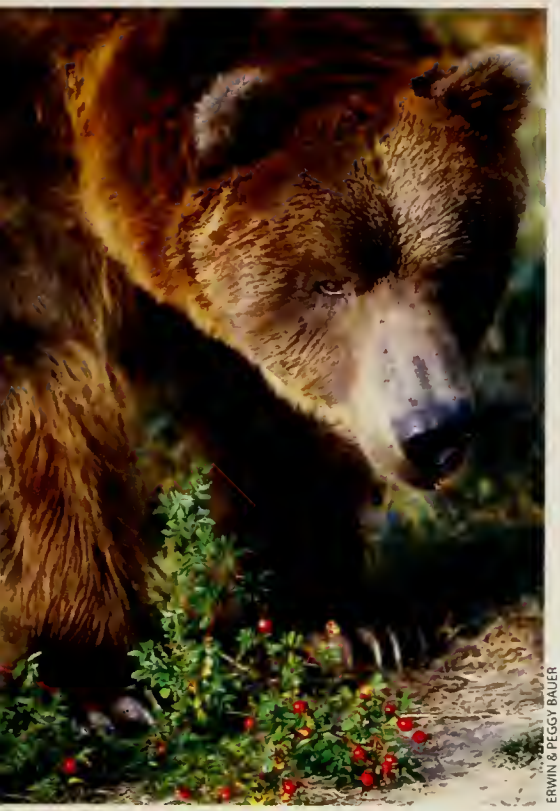
The federal agency may get that data within several years. Montana Sen. Conrad Burns is seeking $1 million in federal money to better monitor the NCDE grizzly population. The new study would be patterned after work recently conducted in Glacier National Park, using scent stations that attract bears. A strand or two of barbed wire surrounds the stations, and when a bear crosses the wire, the barbs catch hair. By examining DNA in hair follicles, scientists can distinguish individual animals and thus make an estimate of an entire bear population in the area where the stations are set up.

"The DNA study will give a one-point-in-time population estimate," says Servheen, adding that a total of $3 million is needed for a comprehensive study, and that the research would take four years to complete. Researchers from Glacier National Park and FWP would conduct the DNA study.

JEFF HENRY

HAIR RECENTLY: A bear researcher collects grizzly hair samples for DNA research in Glacier National Park. If funded, a similar approach could help document the growing numbers of grizzlies in the entire Rocky Mountain Front.

Montana also needs ecosystem-specific grizzly management plans that prove to the USFWS—and to federal courts—that the state would not allow grizzly populations to become threatened. FWP has produced such a plan for northwestern Montana grizzlies and recently wrote a draft plan for grizzly management in Montana's portion of the



ERWIN & PEGGY BAUER

NO MAGIC BULLET: Biologists point out that any hunting season would be severely limited and would not reduce the overall grizzly population. The value, they maintain, would be to increase wariness among bears moving down from high country during years of poor berry production.

Greater Yellowstone Ecosystem. The grizzly population there is closer to de-listing than the NCDE population. That's because, over the past two decades, most federal money available to monitor grizzly numbers has gone to the Yellowstone region, which contains one of the nation's most popular national parks. As a result, bear biologists have been able to more accurately document the GYE grizzly population.

Arnie Dood, FWP endangered species coordinator, hopes the combination of management plans and more accurate data will eventually allow Montana to manage grizzlies like it does other big game species, which includes using regulated hunting seasons when necessary and biologically justifiable.

"Grizzly bear management is bear management is wildlife management," he says. "Managing grizzlies should be like managing other wildlife."

Dood adds that Montana grizzlies thrived for decades under state management that included controlled, regulated hunting. The species was designated as a game animal in 1923, and for nearly 70 years the state was able to allow for some hunting while managing conflicts between landowners and a steadily increasing number of bears.

FWP's grizzly bear management plan, which was out for public review for six months, explains how Montana would carry out management activities such as responding to southwestern Montana grizzlies destroying property or livestock, restricting campers and other recreationists in grizzly country, reducing conflicts between grizzlies and livestock owners, and managing restricted grizzly bear hunting seasons.

Under no circumstances

For many people, however, even limited hunting should never again be an option. "Under no circumstances should FWP consider opening a hunting season on grizzly bears," says Lococo, from The Fund for Animals. "We do not need to add to the perils they already face by legalizing a hunting season on these very slow-reproducing animals."

Anti-hunting groups maintain that, because bears have so few young, it could take decades for their populations to recover if they were overhunted.

The biologists, however, point out that any grizzly bear hunting would be closely monitored and extremely restricted. Madel notes that hunting would create wariness in individual bears, "especially the young females that haven't seen hunting pressure and aren't teaching their cubs to be afraid of people."

Moreover, says Madel, limited hunting could cull some of the problem bears now vexing the Haynes and other Front residents. "If we held hunts on private land where we didn't want bears habituated, then it would be the boldest and least wary bears that would be killed," he says.

FWP's southwestern Montana grizzly bear management plan will soon be submitted to the USFWS. Similar plans done by Wyoming and Idaho will outline those states' plans for managing Yellowstone ecosystem grizzlies if the species were de-listed. But every step of the de-listing process will certainly be accompanied by lawsuits.

"We would explore all the avenues available to us to prevent what we consider premature de-listing, including legal action," says Lococo.

Translation: De-listing the grizzlies visiting the Haynes will take years and years. And a grizzly bear hunting season? Don't bet the ranch on it.

For now, FWP grizzly specialists continue to help the Haynes and other ranchers prevent bear conflicts. But the grizzly population continues to expand without any hunting to make bears skittish. Madel fears that bear-human conflicts may soon overwhelm biologists' ability to trap problem bears and transfer them to other areas. Eventually, he says, there may be no more places to put offending grizzlies, forcing government agencies to destroy them. ■

DONALD M. JONES

BRAZEN BRUINS: Because young female grizzlies haven't been hunted, say biologists, they aren't teaching their cubs to be afraid of people.

CACHE in HAND

The ingenious ways wildlife prepare, store, and defend their food

By Sam Curtis

It's fall. The first real feel of impending winter has snapped into my bones with a series of deep frosts, punctuated by piercing winds out of the north. These messengers of colder rimes goad me into thinking of the carrots still stuck in the garden and the chilly fruit clinging to our apple trees. It's time to get off my duff and store that stuff in the root cellar.

Our on the back porch, I grope for boots that have hung by their laces all summer. I pull on one, but the other is filled with something that turns out to be dried dog food that some mouse has robbed and stashed away. It's fall, and we're all thinking the same thing.

When I go outside, a red squirrel peppers me with cones from the big fir near the path to the garden. The ground is littered with cones. Piles of them have grown large against the tree trunk over the last few days. I have to laugh at our kinship—the mouse, the squirrel, and me.

DONALD M. JONES

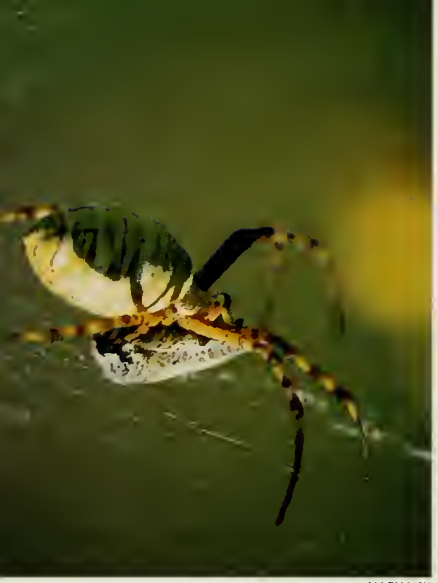
We're food hoarders, all three of us. It's our way of dealing with the problems of an intermittent and unpredictable supply of edibles. I can't grow vegetables all year in Montana's climate, so I harvest food when it's ready and store much of it for later consumption. I freeze green beans, can berries, and keep carrots and apples in the root cellar. But my pantry preparations seem paltry compared to what insects, birds, and mammals do to prepare, store, and protect their food. Every storage technique I practice has been mastered by animals, which also employ additional methods so ingenious they make me feel like a larder-stocking amateur.

I've discovered some of these secrets by watching wildlife. But while rooting in the library recently, I came upon a mother lode of information in a book titled *Foraging Behavior*, by Stephen Vander Wall and Kimberly Smith. What they learned after reviewing decades of research on "cache-protecting behavior of food-hoarding animals," the title of one fascinating chapter, made me rethink much of what I thought I had known about animals preparing for winter.

Red squirrels often store conifer cones in cool, moist areas to keep seeds fresh.

For animals, food hoarding is much more than pushing seeds into a pile and calling it done. Things can go wrong: Food can spoil, it can be stolen, or, if it's a living edible such as a spider's fly, it can even escape on its own. Caches of food can get buried by snow. Or their owners might simply lose the hoard for lack of remembering where it was stored.

With their lives at stake, animals have devised intricate ways to prepare, store, and defend their food against these and other possible losses.



ALLEN HAY

Spiders wrap live prey in silk to keep it secure until dinnertime.

One major concern is rot. You know the story: A single raspberry in the box turns gray and fuzzy, and, if you don't throw it out, soon all the others are growing beards too. Clark's nutcrackers and gray squirrels can't afford such waste. Nutcrackers visually check each seed they collect and toss out any that look rancid. Squirrels, on the other hand, sniff out nuts that smell wormy and toss them out so the worms won't crawl into other stored nuts.

After inspecting seeds, nuts, and grasses, many animals go to great pains to dry these foods out to prevent spoilage. Woodpeckers turn stored nuts frequently to dry them evenly. After pikas harvest grasses and stack them in piles under rock overhangs, they fluff the hay often so it dries faster. Kangaroo rats dry seedpods under light dustings of soil during the heat of summer before moving them into subterranean caches in the fall. Harvester ants store grain in cool, dry underground tunnels and will even carry seeds that show signs of sprouting back up into the sunshine for further drying.

Red squirrels are especially ingenious, according to Vander Wall and Smith. "Red squirrels are known to collect, dry, and store mushrooms for winter use," they write. "Mushrooms are carried into trees and placed in hollow cavities, on top of old bird nests, or lodged in foliage. These mushrooms dry rapidly and become tough or brittle and resistant to decay." (Sounds a lot like the dried shiitakes my wife, Linda, just brought home from Costco.)

Red squirrels know that different foods require different processing techniques. The rodents' staple diet consists of conifer cones, which, when they dry out, become less palatable. So squirrels often store cones in the cool, damp depths of their middens, producing piles of cone litter below the branches where they sit and eat. This moist refrigeration keeps cones edible months longer than they would last in the open air.

Honeybees have an even more high-tech method of processing food so it won't spoil. Through their own body chemistry, they convert gathered nectar into honey, which, because of its high sugar concentration, contains antibacterial properties that greatly extend its shelf life.

Food storage becomes an even more complicated problem for carnivores. Once prey is dead, it decomposes quickly. But if prey is captured and not killed, it might escape.

Predators such as grizzly bears and gray wolves must gorge on large kills, such as elk and moose, over relatively short periods so the meat

Clark's nutcrackers visually check each seed they collect and toss out any that look rancid.

MICHAEL S. QUINTON

DONALD M. JONES

doesn't spoil and go to waste. Other predators have a few more options. Spiders, for example, wrap live prey in silk to keep it secure and alive until it's time to dine. One species of wasp keeps food fresh for its larvae by paralyzing flies with a sting and sealing as many as a dozen of these living but incapacitated edibles into each larval cell for the maturing wasps to eat. And there's a type of ant that marches into rival colonies, stings the larval ants, and then drags them back to store them in a state of metabolic limbo for as long as two months before devouring the unfortunate creatures.

After pikas harvest grasses, they fluff the hay often so it dries faster.

Larger creatures have similar, no-nonsense means of food preservation. Using a toxin in their saliva that they inject with a bite, shrews keep mice and earthworms alive but comatose for up to five days. Moles will maim but not kill worms so the creatures can't escape but will remain fresh for eating later. Likewise, crows along the northwestern Pacific coast pluck the legs off crabs before caching them under moss and grass for consumption after a day or two.

In a cold climate, such as that in Montana, fresh food turns into frozen dinners. Saw-whet and great horned owls kill and stockpile mice in winter. When it comes time to take one out of the freezer to eat, they sit on it, as if they were incubating an egg, until it is thawed enough to tear apart and eat.

None of this varied food preparation does an animal any good, however, if another one raids its pantry. And there are lots of robbers in the animal world; even mates steal food from one another. To prevent pantry pilfering, some birds and animals go to great lengths to hide their food in trees, under grass, and even under ground. And they try to do this when potential robbers aren't looking.

Red-headed woodpeckers, for example, poke seeds in holes in trees and seal them over with wood splinters. A Clark's nutcracker will bury thousands of seeds on high ridges where winrer snows later blow in and keep the cache deeply buried, even from rodents, until early spring. Then, as the warm sun melts the snowbanks, the nutcracker feeds greedily on newly exposed seeds it hid months earlier.

Another way animals foil would-be robbers is to move food to a spot where the thief is unlikely to venture. Blue jays often transport acorns from the woods where they are found, and where squirrels are likely to steal them, out into open meadows where the furred thieves rarely venture.

Hiding and camouflaging food stores is typical of birds and other scatter-hoarders—animals that cache small amounts of food at many locations scattered about their range. These creatures must rely on their mobility and excellent spatial memory to retrieve stored food.

Larder-hoarders, on the other hand, store all their food at one or two closely spaced spots so they don't have to move far to reach it. Since large quantities of food are difficult to hide, however, these animals must rely on aggressive defense of their larders to protect them from robbers. So, squirrels scold; birds dive-bomb; bees sting. But a real threat comes when a potential robber gets between a large carnivore, say a mountain lion or a grizzly bear, and its meat cache. Thomas McNamee gives you a feel for the protective sense of a sow grizzly guarding her kill in his classic treatise *The Grizzly Bear*:

"She excavates a shallow elk-sized hole and maneuvers the carcass in. She shovels dirt, duff, mud, snow, sticks, rocks, whatever is handy, to cover her property and warn off any interlopers; this covering will be known to all as the signature of a grizzly bear, to be gainsaid only at great peril. She even drags a good-sized tree trunk out of a logjam downstream and heaves that over too.

"Curled up here, concealed to perfection within defensive-charging distance of her meat cache, the bear and her young may sleep their breakfast off in watchful security."

MICHAEL H. FRANCIS

Because large quantities of food are tough to hide, grizzlies aggressively defend their larder from robbers.

Sam Curtis is a freelance writer from Bozeman

Grizzlies rarely have their pantries robbed. But there are more subtle ways for stored food to disappear. Seed-caching animals always face the possibility of having seeds germinate and get consumed by the plants that grow from them. Birds try to prevent this by stashing seeds where conditions are poor for germination: off the ground, in leaves, and under flaps of bark. Rodents haul seeds deep underground, where darkness and coolness discourage growth. Some squirrels and chipmunks even go so far as to chew off embryos and shoots from nuts before they store them, in order to literally nip germination in the bud.

BERT GILDART

Saw-whet owls stockpile mice in winter. When it's time to take one out of the freezer, they sit on it, as if incubating an egg, until it is thawed enough to tear apart and eat.

Food may also disappear by falling or being blown from where it was cached. Birds are particularly adept at fastening seeds down to prevent them from moving. They wedge seeds in cracks and behind bark. They use filaments from spider webs, cocoons, and fibrous plants to hold seeds in place. And they use their own saliva to glue seeds down. Raptors will even use blood and other body fluids of prey to securely paste it onto trees or rocks to await later consumption.

Though wind, wetness, and thievery pose problems to nature's hoarding wildlife, the biggest threat comes from winter. If a food cache gets buried under snow or frozen into ice, it will be useless to hoarders just as surely as if it had spoiled, blown away, or been stolen. Which is why Vander Wall and Smith give a tip of the hoarding hat to the species that appears to have mastered food storage during even the worst winter weather. "Beavers store tree branches and logs during late summer and fall and feed upon young wood, bark, and cambium in winter," they write. "They bury food in bottom sediment and construct floating caches. A floating cache is started by constructing a raft of low preference species such as alder and non-food items such as peeled aspen logs. High preference food species such as aspen and willow stems are placed beneath the raft. The raft gradually becomes waterlogged, causing the cache below it to sink. When beaver ponds freeze in winter, rafts containing low preference and non-food items become locked in ice, but preferred food species are accessible, lodged below the raft."

Beavers can build a submersible refrigerator able to feed an entire family unit throughout the winter. And here I was patting myself on the back for getting a few carrots down to the root cellar. ■

Beavers store tree branches and logs during late summer and fall and feed upon young wood and bark in winter.

TIMCHRISTIE.COM

New Books

Some interesting titles that have crossed our desks recently:

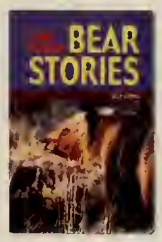
The Call of the Mountains: The Artists of Glacier National Park. *Larry Len Peterson. Missoula, Mont.: Mountain Press Publishing. 2002. 156 pp. Softcover. $32.95.*

Glacier National Park has been photographed like few other places on earth. Many painters have found their inspiration there, too. Some of the best of both arts is captured in this new coffee-table paperback, which includes works by Edward Curtis, Maynard Dixon, Charles M. Russell, and others who photographed or painted the park before 1930. Author Larry Len Peterson, of Plentywood, collects Western and Glacier National Park art and has received awards for previous volumes on Russell and Philip R. Goodwin. Notable is his chapter on Louis Warren Hill, president of the Great Northern Railway, which in the early 1900s invited prominent painters and photographers to the park to find material for posters, magazine advertisements, and other promotional works that lured visitors from across North America to the majestic mountains (via train, of course).

Castwork: Reflections of Fly Fishing Guides and the American West. *Text by Kirk D. Deeter and Andrew W. Steketee, photography by Liz Steketee. Minocqua, Wisc.: Willow Creek Press. 2002. 200 pp. Hardcover. $40.*

After reading this collection of fishing guide portraits, we found ourselves fascinated by these diverse and thoughtful men and women who've mastered fishing on the West's great rivers. No question they're a mixed bunch. A few seem so bitter and sour it's hard to imagine a client offering a tip, no matter how good the fishing was. Others exude so much charm you want to hire them even if the fishing stinks, just to pal around for the afternoon. Black-and-white photographs capture the beauty of the sport while reminding the reader that, for the guides, this is hard and serious work.

Great Montana Bear Stories. *Ben Long. Helena, Mont.: Riverbend Publishing. 2002. 184 pp. Softcover. $12.95.*

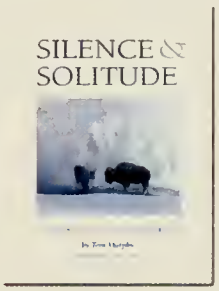


"Why are we so fascinated by bears?" asks author Long, a writer who lives in Kalispell. This book, containing dozens of stories on grizzly and black bears, attempts to answer the question. Stories range from 19th century mountain men encounters to the mauling death of an elk hunter in the fall of 2001. Long, who has written occasionally for *Montana Outdoors*, says he dug through decades of Montana newspaper archives and interviewed dozens of ranchers, biologists, and others who've encountered bears firsthand.

Grassland Grouse and Their Conservation. *Paul A. Johnsgard. Washington, DC: Smithsonian Institution Press. 2002. 157 pp. Hardcover. $34.95.*

Few living authors can rival Johnsgard for expertise on birds. Having written more than 40 books on ornithology, the recently retired University of Lincoln professor has now issued a much-anticipated academic volume on the continent's grassland grouse species: sharptail, sage, and prairie chicken.

Silence and Solitude: Yellowstone's Winter Wilderness. *Tom Murphy. Helena, Mont.: Riverbend Publishing. 2002. 128 pp. Hardcover. $29.95.*



Picture books of Yellowstone National Park are as common as crowds at Old Faithful. But this is the first book we've seen to focus exclusively on the great park in winter, showing a face of Yellowstone few get to see. As Tim Cahill notes in the forward, "This book is the closest most of us will get to a backcountry ski trip through Yellowstone." Photographer, guide, and naturalist Tom Murphy, of Livingston, spends winters in the park, observing and taking pictures. The result is a coffee-table book that captures scenes ranging from snowscapes and geysers to otters frolicking along the Yellowstone River, and a riveting sequence showing a fox bounding after mice and voles.

The Roadless Yaak: Reflections and Observations About One of Our Last Great Wild Places. *Edited by Rick Bass. Guilford, Conn.: The Lyons Press. 2002. 244 pp. Hardcover. $22.95.*

Rick Bass lives in the Yaak Valley, a wilderness area he loves so much he spends weeks on end writing letters to politicians imploring them to save it. In 1996, he wrote *The Book of Yaak*, an impassioned plea to protect the wilderness area from development. Now he's gone a step further and invited 35 writers, philosophers, and scientists to visit the valley and write about it. Contributors include Annick Smith and William Kittredge.

The Encyclopedia of North American Sporting Dogs. *Minocqua, Wisc.: Willow Creek Press. 2002. 256 pp. Hardcover. $45.*

From ordinary Labs and Brittanies to the largely unknown coonhounds and Nova Scotia tolling retrievers, this heavily illustrated volume covers 76 spaniel, retriever, pointer, hound, and versatile breeds used for hunting in North America. ■

2002 *Montana Outdoors* Index

To inquire about or order a back issue ($3.50 each), contact us at: *Montana Outdoors*, Montana Fish, Wildlife & Parks, P.O. Box 200701, Helena, MT 59620-0701; (406) 495-3257; montanaoutdoors@state.mt.us.

January–February

The 21st annual *Montana Outdoors* photo issue: saw-whet owl *(cover)*, bobcat *(back cover)*, walleye, white cliffs of Missouri River, Logan Pass, black bear, otter, black Lab, Ear Mountain WMA, elk, elk camp, antelope, Beaverhead Rock, rainbow trout, Yellowstone River, goldenrod spider, buck in velvet, bluebirds, Glacier National Park, hidden elk, baby mountain goat, elk calves, coyote pups, marmot, Bannack State Park, Brittanies, English setter, bighorn rams, bull moose, whitetail buck, prairie, bison calf, happy angler, common snipe, American dipper, autumn angler, American kestrel, black-footed ferret, Big Hole Valley, wood ducks

March–April

FWP's 2001 Annual Report

Dave Books: the next lesson. *By Bruce Auchly and Tom Palmer*

What will methane cost? *By Bruce Auchly*

Can hatcheries help conserve the westslope cutthroat? *By John Fraley*

The resurrection of Brewery Flats. *By Anne Tews and Mark Lere*

Solving the puzzle of Fort Peck's young paddlefish. *By Joe Kozfkay, Dennis Scarnecchia, Kent Gilge, and Bill Wiedenheft*

Montana Outdoors Report: Dickson takes the reins of *Montana Outdoors*; Public asked to comment on wolves; Bear hunters take test in droves; *Montana Outdoors* Challenge winners; new FWP Automated Licensing System

From the Field: The truth hurts

Montana Outdoors Portrait: Sandhill crane

May–June

Wild Romance. *By Sam Curtis*

Rough ride on the Smith River. *By Tom Dickson*

Touring Montana by mouse. *By Anastasia Burton*

Making young fishing fanatics. *By Dave Hagengruber*

Montana's buffalo trout. *By Bruce Auchly*

Natural Wonders: Can bullheads and catfish sting? Horns vs. antlers

Our Point of View: No political intent

Montana Outdoors Report: Crazy about loons; Fish records shattered; Naive about native fish; Duel to the death?

From the Field: Caught in the act

State Parks 2002 Events Calendar

Montana Outdoors Portrait: Yellow-winged blackbird

July–August

Will wolves wipe out Montana's elk? *By Tom Dickson*

The grizzly of Falls Creek. *By Ben Long*

Hope for Montana's prairie songsters. *By Bruce Auchly*

How's the fishery? *By Tom Dickson*

The greatest fish you've never seen. *By Tom Dickson. Illustrations by Joseph Tomelleri*

Natural Wonders: Shortest river; Buttes; State's hottest spot

Our Point of View: Hardly extreme

Montana Outdoors Report: Trophy bull elk study; Mining company leaves land legacy; Student state parks poster design contest; Automated license Q&A; Epizootic hemorrhagic disease

From the Field: Trophy doe hunt

State Parks 2002 Events Calendar

Montana Outdoors Portrait: Red-breasted nuthatch

September–October

Making a killing. *By Sam Curtis*

Spreading the wealth. *By Alan Charles*

Gun dogs. *By Dave Books*

Saving Montana's wetlands legacy. *By Tom Dickson*

Enough already? *By Tom Dickson*

Natural Wonders: Resident license qualifications; Dinosaur update; Woodpeckers

Our Point of View: What should we do with our state parks?

Montana Outdoors Report: Tracking trout; New Zealand mud snail; New Fort Peck fish hatchery; Montana wildlife rehabilitation center; Hunting season dates

Montana Outdoors Portrait: Marten

November–December

Keys to the treasure. *By Alan Charles*

Beaglemania! *By Bil Holmes*

Heart of the hunt. *By Dr. Thomas Baumeister*

Cash register conservation. *By Tom Dickson*

On the front lines. *By Bruce Auchly*

Cache in hand. *By Sam Curtis*

Natural Wonders: Are moose bigger than elk? How do frogs hibernate underwater? Wilderness acres

Our Point of View: We make the motor run

Montana Outdoors Report: No CWD in Montana's deer; Snowmobile high-marking; Snow geese; Winter park activities.

New books

2002 *Montana Outdoors* Index

Montana Outdoors Portrait: Common goldeneye

Montana Outdoors

PORTRAIT

Common Goldeneye

(Bucephala clangula)

By Tom Dickson

Ever notice those white-marked buzz-bombs flying in tight formation up and down the Missouri, Yellowstone, and other major rivers all winter? They're common goldeneyes, hardy mid-sized diving ducks that comprise the end of the annual fall waterfowl migration.

Goldeneyes are sure harbingers of winter. As old-time duck hunters say, "When you see dem goldeneyes, iss time to break out da ice skates, dats fer sure."

Appearance

The common goldeneye's scientific name derives from the Greek word *boukephalos*, which means ox- or buffalo-headed, in reference to the bird's oversized head, and *clangula*, which is Latin for "small noise," a reference to the whistling sound made by the goldeneye's wings in flight.

The bird's common name comes from its bright amber-colored iris (though it's hardly unique among ducks, being also found on ringnecks, redheads, and scaup).

In the air, the drake and hen goldeneye both look much whiter than most ducks, with a white breast and a large white patch on the wing. When on the water, look for the male's dark green-glossed head and white round cheek patch.

The common goldeneye is easily confused with its cousin the Barrow's goldeneye. Usually only biologists can tell the hens apart, but the male Barrow's has a crescent-shaped cheek patch rather than the common's round one. Both species of goldeneyes are strong fliers, and in flight their medium-sized bodies appear stout with short necks and large heads.

Sound

Whistling wings are a trademark of these little rockets, which fly in compact clusters and are known as "whistlers" by some hunters. When courting, the male makes a distinctively nasal *pee-ik* sound similar to that of the nighthawk.

Food

This duck likes seafood: Fish, aquatic insects, and crustaceans such as snails and crayfish make up most (about 75 percent) of its diet. The rest is seeds, roots, tubers, and other plant material. Strong swimmers, goldeneyes submerge for as long as 40 seconds and dive to depths of 20 feet for food.

Courtship behavior

Male goldeneyes have the most spectacular spring courtship display of any waterfowl, with much head pumping, neck stretching, splashing, and short jumps or flights off the water.

Reproduction

Like wood ducks, goldeneyes nest in the cavities of old or dead trees, often near ponds or lakes. They often return to the same tree year after year to make their nest. The female lines the cavity with down and wood chips before laying an average of nine pale blue-green eggs. Just a few days after hatching, the goldeneye duckling jumps down from the nest cavity to reach the ground or water.

Habitat

Common goldeneyes breed from Alaska, across the forested parts of northern Canada to Newfoundland, and south to northern Washington, northern North Dakota, northern New York State, and Maine. The birds winter from the southern limits of their breeding range to the Gulf states. In Montana, they are commonly seen this time of year along major rivers.

Migration

These are birds content to stay around cold and ice. They'll stay on a lake literally until the day it freezes up, and then move only as far as a nearby river and stay there until it freezes. Often they'll remain in Montana throughout the winter.

Appeal

They aren't a big part of Montana's overall duck harvest, but they are hunted, especially in late season, says Jim Hansen, FWP Central Flyway biologist. Though some hunters say the birds don't taste good, Hansen says otherwise: "I just had a breast the other day." He says to get rid of any gamey smell, cooks should "cut off the skin and fat."

Status in Montana

The common goldeneye doesn't breed in Montana but rather migrates through. Its cousin, the Barrow's goldeneye, does nest here along rivers and lakes throughout much of southwestern Montana, especially in the Beaverhead Drainage, the Three Forks area, and along the Yellowstone River. ■

W. STEVE SHERMAN

Tom Dickson is editor of Montana Outdoors

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CONE PRONE: Red squirrels stash cones and seeds in refrigerated compartments to get through the winter. To learn how other wildlife species store their food, see page 30. Photo by Dave Maslowski.